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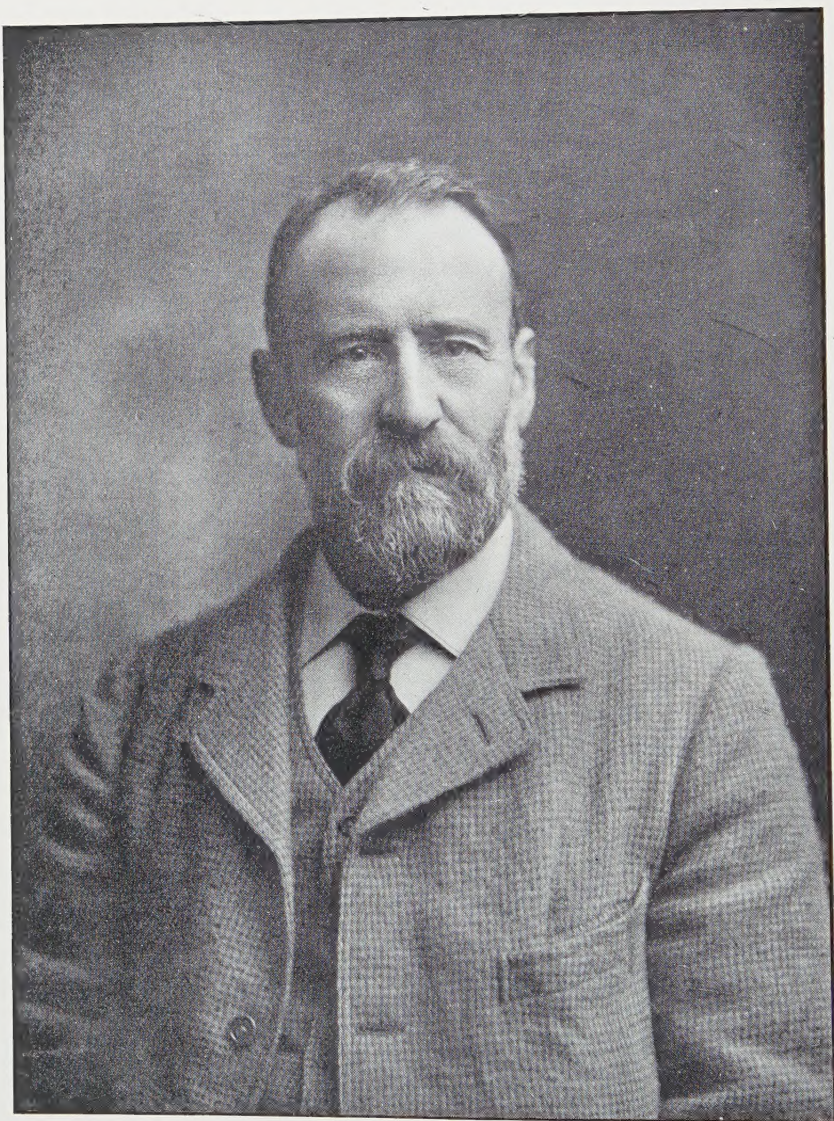
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The Natural History of
SPORT IN SCOTLAND
WITH ROD AND GUN



Yours Faithfully
Tom Speed

The Natural History of
SPORT IN SCOTLAND
WITH ROD AND GUN

BY

TOM SPEEDY

AUTHOR OF

‘SPORT IN THE HIGHLANDS AND LOWLANDS OF SCOTLAND’

WITH NUMEROUS ILLUSTRATIONS BY

LIEUTENANT-COMMANDER J. G. MILLAIS

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To the Memory of
A DEARLY LOVED ONLY SON
WHO GAVE HIS LIFE FOR HIS COUNTRY
VOLUNTEERING AT THE OUTBREAK OF
WAR, WHEN ONLY EIGHTEEN YEARS OF
AGE, AND WHO WAS KILLED BY SHELL-
FIRE IN THE RETREAT FROM CAMBRAI
ON 22ND MARCH 1918
THIS BOOK
IS MOST AFFECTIONATELY DEDICATED
BY
THE AUTHOR.

P R E F A C E.

I LAY no claim to be a scientific naturalist. Since early boyhood, however, the haunts, habits, and peculiarities of the wild birds and beasts that frequented the districts in which I resided have been my incessant study, and more especially game and their enemies. I hope the information contained in the following pages may prove interesting and instructive to those who read them. I know what assistance such a book would have been to me in my youthful studies of the subjects on which it treats. In early life I was compelled by necessity to rise with the lark, when much pleasure was derived, everything in nature having then a pleasant feature, as if delighted to see the dawn of another day. Every warbler in the grove seemed bent on pouring forth its sweetest melody, while the carol of the lark in its aerial ascent and the plaintive cooing of the wood-pigeon delighted my ears.

Ruskin said, "the greatest thing a human being can do is to see something and tell what he saw in a plain way." I have no pretensions to literary merit or finished composition, but have all my life jotted down notes when observations were made, and as a rule contributed them at the time to the columns of some magazine or newspaper, or read them at a meeting of the Edinburgh Field Naturalists' Society, when they found their way into the 'Transactions.' I have utilised portions of these contributions as well as some of my previous writings, and incorporated them in the pages of the present work. I am therefore indebted to 'The Scotsman,'

'The Glasgow Herald,' 'The Field,' 'The Scottish Field,' 'Blackwood's,' and 'Badminton' Magazines, and other journals, for their kind permission to reproduce them.

To the late Mr David Lewis, one of the Magistrates of the City of Edinburgh, I am largely indebted for his kindly advice and encouragement to write my experiences in the sporting world. I am also indebted to the late Mr John Lindsay, who looked forward to reading the proofs, but who, alas! did not live to see them completed. He pressed me to get on with the work, and wrote a biographical sketch, with a request that I would utilise it as an introductory chapter. Out of deference to his wish I reproduce it, though I fear it may be regarded as smacking of egotism.

T. S.

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TOM SPEEDY: SPORTSMAN AND NATURALIST.

A BIOGRAPHICAL SKETCH.

By JOHN LINDSAY, of the Edinburgh Field Naturalists' Society.

THERE is no more interesting part of the Border country than that through which the Tweed flows for the last few miles of its course ere it is swallowed up by the North Sea. Here are found such famous names as Flodden, Coldstream, Twizel, Ladykirk, Norham, and finally Berwick. The whole district is crowded with traditions of raid, strife, and disaster. From the days of Edward I. and the elder Bruce to those of James VI., a period of fully three hundred years, this was the region where kings and nobles repeatedly met in conference or armies joined in conflict, and where the fortunes of Scotland were often decided. Lynx-eyed men looked out on both sides of the line which divided the two kingdoms, ready to spring at each other's throats on the slightest provocation. The descendants of such a race could not help being patriots—their hearts filled with an intense love for their native land, and their minds imbued with a manly independence.

It was amid such surroundings that the subject of this biographical sketch was born, on the 19th February 1846. His father, James Speedy, was employed on the estate of Ladykirk, living that obscure yet honest and upright life out of which so many have stepped into the sunshine of wider recognition, and even into fame itself. Tom was the second youngest of a family of seven—three sons and four daughters—of whom only a daughter and himself survive. He was sent in due course to the parish school, then taught by Joseph

Thomson—a stern dominie of the old régime, with many of the features depicted by Goldsmith as characterising the schoolmaster of “Sweet Auburn.” For this strict disciplinarian, however, Tom ever had the greatest respect, and when ‘Sport in the Highlands and Lowlands of Scotland’ was first published, a copy was duly sent to Joseph Thomson, with the inscription: “From his mischievous old pupil.”

School days with Tom, however, were few, for at the early age of ten he was already working in the fields. He describes himself as “a native of the historic Borderland, a descendant of the Border thieves” who

‘Stole the beeves that made their broth,
From England and from Scotland both.’”

His schooling having perforce come to an end at the age of twelve, he began at the bottom rung of the ladder—namely, as kennel-boy on the estate of the late Lord Marjoribanks, at Ladykirk. The open-air life of a lad, curious regarding the ways of bird and beast and fish, is a very pleasant and enviable one. He writes in the following characteristic fashion regarding himself at this early period:—

The habits of the birds and beasts that peopled the district were to me subjects of intense interest. Inheriting the hunting spirit of my ancestors, to engage in a badger, a fox, or an otter hunt was, in my boyish imagination, the chief end of man.

It was now that the foundations were laid of that intimate knowledge of natural history which is so eminently characteristic of Tom Speedy, and which will afterwards be referred to more fully. At the age of seventeen he was promoted to the position of under-keeper on the estate, and travelled with his master to various places, both in Scotland and England, in the pursuit of sport. Several months were most pleasantly and profitably spent at Struy, in Strathglass, Inverness-shire, where amongst the friendships formed,

was a lifelong one with the late Dougal Campbell, the veteran stalker in Strathconan Forest.

The experience thus gained was soon to be put to good account. In this widened sphere of observation, everything likely to be of future use was stored up in a very retentive memory; and it is impossible to overestimate the advantages which were secured at this formative period of his life. The way was being prepared for the next important step, which involved leaving Ladykirk and the beloved Borderland. As already observed, there is much to engage the interest of every Borderer, or, indeed, of every true-born Scot, in that stretch of country which has Ladykirk for its centre and the Tweed for its boundary. Here, at the ancient village of Upsetlington, on May 10, 1291, King Edward I. decided that question of succession which made Baliol a feudatory of England, but which also led to Bannockburn and the proud assertion there of Scottish independence. At the head of the island in the river is a ford where, it is said, James IV. was nearly carried away while crossing into Scotland at the head of his army. In his dilemma he vowed to the Virgin Mary that should she be good enough to deliver him, he would build a chapel that neither fire nor water could destroy, and there the church with its vaulted roof stands as a memento of the occasion. This was in the year 1500, and the venerable edifice is still used as the parish church.

On the forty-fifth anniversary of his leaving Ladykirk, Tom delivered a lecture at Norham on "The Tweed: its Fish, Bird, and Animal Life, with Personal Reminiscences." Amongst these he described the capture of his first salmon and the hooking of the second. Perhaps it would be better to give his own words:—

A few hundred yards from the junction of the Graden Burn with the Tweed is the place where I caught my first salmon, directly opposite Ladykirk House. Never can I forget the excitement and pleasurable sensation associated with it. With a somewhat primitive rod and reel I was industriously casting, my line describing curves in the air undefined by Euclid before alighting on the water. The current carried out the line, when suddenly my "Durham

Ranger" was seized, and a wrench at the rod, a wild splashing, and an angry protest from the reel, demonstrated that my first salmon was firmly hooked. Time forbids going into detail as to the running of that fish. Suffice it to say, that the handle parted company with the reel, and being alone, my difficulties were great. Eventually, however, I got him ashore, and when I looked upon my prize—a fine new run salmon, 15 lb. in weight—I felt that I had engaged in a struggle culminating in a victory to which during my previous lifetime I had been a stranger. It was years before I hooked another salmon. By this time I had a better fishing-rod, made by Joe Currie, a joiner on the estate. It was immediately below Norham Bridge, and I was casting away, when I became aware, by an agitation in the bowels of the deep, that a fish was in pursuit of my fly, the sheen of silver testifying to his recent arrival from the North Sea. Presently I felt a tug, and at once struck, raising the rod perpendicularly; but I thought he was off, as I did not feel him. He had evidently swum towards me after taking the fly, which prevented me from keeping the line tight; but presently he gave a great pull, and, whizz! away he went into the middle of the stream. The indescribable sensation would require a pen more gifted than mine adequately to describe. I once heard a lady make the attempt. She stated the sensation that flashed through her frame along the line from the fish far out in the depths was somewhat akin to the thrill that passed through her soul when her lips were pressed with the first kiss of love. The late Mr Russel of 'The Scotsman' said that "the thrill of joy, fear, and surprise induced by the first tug of a salmon is the most exquisite sensation of which this mortal frame is susceptible." It would be superfluous to describe the running of the salmon, all runs being so similar; but, like all fish that escape, he was a very big one. I had him tired out and close to the side when I stooped forward to lift him out. How it happened remains a mystery, but the hook came out of his mouth, and though dead-beat, he gave a splash with his tail which got him covered with water, and before I could lay my hands on him he disappeared into the depths. A number of people were on the bridge looking down, and I felt that my reputation was gone. I was almost moved to tears when I experienced that moment—that bitter moment—of inexplicable disappointment, which none but the genuine disciple of Izaak Walton can understand. To descend for a moment into the arena of politics, I felt the catastrophe to be one before which the collapse of a Balfour or Asquith Government was as dust in the balance, and unworthy of a passing moment's consideration.

Some more quotations from his lecture may be worth recording here. In one of his reminiscences he said—

When at school, my earliest recollection of the Tweed was the circumstance of a boy being drowned in it, after which all the smaller fry were forbidden to go near the river. Wading in the shallow parts, armed with a table fork to

spear small trout, eels, flounders, and "beardies," or to cry "Bannockburn!" to boys on the other side, who retaliated with "Flodden!" had an irresistible attraction for us, and set the dominie's tawse at defiance. As I grew bigger, a flooded river—when set lines with baited hooks proved successful—or a meet of the fox-hounds in the district, was sure to result in my playing truant. One severe winter, when the Tweed was ice-bound, we were strictly forbidden by our teacher to go near the river. The attraction of a slide for boys is like that of a magnet to a needle, and at the dinner-hour on the very day of the dominie's warning, a band of us started for the Tweed. "All went merry as a marriage bell," until a contest arose as to who would slide farthest in. It was immediately above Norham Bridge, where the stream runs rapidly in the centre, and where the ice was consequently thin. Venturing farthest in, down I went into deep water. Some of my companions ran off with fright, but with heroic bravery, one, George Steel, at considerable risk to himself, pulled me out by the hair of the head, or, needless to say, I would not have been here to-night. An unlimited use of the tawse by the dominie the following morning had little or no effect, and more than once, when he was breathless from his efforts, I was told that my life would terminate on the gallows. So far, however, that prophecy has not yet been fulfilled.

Many stories from his lecture might be adduced, but let one more suffice.

Leaving school at an early age [he said], I became an adept at the use of the gun. I well remember in my early teens standing on the old wooden bridge shooting salmon as they leaped above the surface of the water, affording what may be characterised as "sporting shots," from the dexterity required. Quite a number were killed, as we could see them from the bridge lying dead; but a difficulty arose as to how they were to be got out. A Mr Thomson, who had been abroad, but who had returned to spend the autumn of his days in Norham, was fishing below the bridge. He wound up the line till the fly was at the point of the rod, and with it I waded to my neck until I managed to get the hook into one, and wading slowly backwards, letting the line out as I receded, until I got into shallower water, I brought it ashore. Another was landed in the same fashion. The news spread like wildfire, and the water-bailiffs were soon on the warpath. Unless caught red-handed by the bailiffs, the difficulty in getting evidence to convict a poacher in the Norham district is proverbial, and I got off scot-free. Many a time in later years have I rehearsed this episode with the late Inspector Donaldson of the Tweed police.

So much for the surroundings and traditions of Ladykirk. Though all this had now to be left behind, what was then so dear

has never been effaced from memory. In 1868, at the age of twenty-two, Tom Speedy came to The Inch, Liberton, as gamekeeper to that well-known and celebrated sportsman, the late Mr Little Gilmour of Craigmillar. In this capacity he travelled over large portions of Scotland and England—in grouse- and partridge-driving and other species of sport. His stores of information regarding Natural History were now greatly increased, and his love of reading could also more easily be gratified than in the comparative seclusion of his native place. Liberton is quite near the Scottish capital, and, during the long winter evenings especially, there were many opportunities for study, which were fully taken advantage of. At this time he also joined the Liberton Literary and Debating Society. Many a young man has been greatly helped, and had his faculties quickened, by connecting himself with such a society, and this was a notable instance. Here our young debater and essayist gained a readiness of address and a facility with the pen which have frequently stood him in good stead, and helped to make his abilities known far and wide. Among the first-fruits of his training was a volume, published in 1884, entitled, 'Sport in the Highlands and Lowlands of Scotland with Rod and Gun.' This work was very appropriately dedicated to Mr Little Gilmour, "whose excellence as a sportsman is well known, and in whose service most of the information contained in the following pages has been acquired." Tom was greatly attached to his master, a man of a most kind and retiring disposition, known amongst his friends by the name of "Gentle," and this dedication was very gratifying to the veteran sportsman. He was, indeed, as much a friend as a master, and his memory Tom has never ceased to cherish with feelings of admiration and respect. In two years after its first appearance, a second edition of 'Sport in the Highlands and Lowlands of Scotland' was called for; and it is only the pressure of other duties which has up to this time delayed the issue of another and still more complete edition.

With advancing years, Mr Little Gilmour became unable to con-

tinue his sporting habits, and a gamekeeper being no longer so much needed, Mr Speedy was advanced to the position of local factor on the Craigmillar Estate, a position he still retains under Mr Little Gilmour's successor, General Gordon Gilmour.

In 1884 the Edinburgh Architectural Association paid a visit to Craigmillar Castle, and reported on the dilapidated condition of the building, particularly the roof. Mr Little Gilmour at once took steps to have this state of matters remedied, and the Castle was at length put into excellent repair, after an expenditure of considerable labour and money. The public-spirited proprietor died in 1887, but shortly before his death he had the satisfaction of seeing this work brought to a successful termination. As local factor on the estate, Mr Speedy carefully watched all the operations; and his interest in the ancient pile resulted ultimately in the production of a beautiful quarto volume, profusely illustrated, entitled 'Craigmillar and its Environs, with Notices of the Topography, Natural History, and Antiquities of the District.' This work was published in 1892, and so favourably was it received that the idea occurred to its author of using it as the groundwork of a guide-book. Many tourists, especially from America, visit this historic place every summer, attracted by its connection with Mary Queen of Scots, and few neglect to carry away with them a copy of this most interesting guide-book. It should here be added that a copy of the original quarto volume, handsomely bound in boards made from the wood of Queen Mary's sycamore or plane tree growing at the hamlet of Little France, near the Castle, was sent to, and graciously accepted by, her late Majesty Queen Victoria.

Mr Speedy's contributions to the daily press have been very numerous. Besides communications to 'The Field' and 'Land and Water,' he has written many letters and articles to 'The Scotsman,' 'The Glasgow Herald,' and other newspapers, on Natural History subjects. He has also contributed to 'The Badminton' and 'Blackwood's Magazine.' In all matters of controversy, or where

there are differences of opinion, it is generally the case that, when the subject is one which has come under his personal observation or knowledge, Mr Speedy's verdict is accepted as final. No statement is ever advanced by him for the truth of which he cannot vouch; and no theory is ever promulgated without careful investigation and scientific experiment. It is too much the fashion for some naturalists to hand on the opinions of others, without any attempt at verification, and with little or no cognisance of the matter in dispute. In one of his papers Mr Speedy writes in this connection: "I know no subject upon which more nonsense is apt to be written than that of Natural History. Let a man once get it into his head that he is a naturalist, and he seems to regard himself as licensed to revel in nonsensical speculation and superstitious folly." Only one of wide experience and accurate observation would dare to write in this manner. As an example of Mr Speedy's careful accuracy the following incident may be related. In the celebrated Ardlamont case, where he was retained for the defence, the theory of the Crown was that the fatal shot had been fired from a distance of at least nine feet. Mr Speedy, on the other hand, held that the muzzle of the weapon must have been within two feet of the victim. His reason for this assertion was that no stray pellets were found in the wound in Hambrough's head, as there must have been if the shot had been fired at such a distance as nine feet. The Crown witnesses also held that at two feet the hair would have been singed. With the ordinary black powder, at such a short distance, this would doubtless have been the result; but the powder in question was that known as amberite, then newly come into use; and in order to prove that at two feet this powder would leave no mark, Mr Speedy tried a shot through his wife's hair, and so proved his contention. When some one asked afterwards if he was not afraid to do such a thing, the dry rejoinder was made: "I wouldn't have let you do it."

For a number of years Tom Speedy has been a member of the Edinburgh Field Naturalists' and Microscopical Society, and during

that time has contributed numerous articles to the 'Transactions' of the Society. These have been on various topics connected with Natural History, as "A Sporting Tour in Norway," "The Hare," "The Rook," "The Mice Plague," "The Squirrel," "The Badger," "The Hedgehog," "Grouse Disease," "Stoats and Weasels," "How I Robbed the Eagle's Nest, and Why," "Do Trout Purify or Pollute Water?" "Recent Observations in Natural History," "Birds of Prey," "The Gannet," "The Stock-dove," &c. It is rather cause for regret that these most interesting papers are accessible only to a few; perhaps in the near future a selection may be made from them for separate publication.

When the rabbit pest became such a serious matter in New Zealand, a Parliamentary Committee of that Colony recommended the importation of stoats and weasels. Mr Speedy was appealed to, and he succeeded in collecting and transporting five hundred of these animals to combat the plague. It has always been Mr Speedy's delight to keep pet creatures, and to mark their various habits, predilections, and peculiarities. Prominent among these have been eagles, ravens, gannets, tawny owls, barn-owls, long-eared owls, short-eared owls, jackdaws, herons, kingfishers, foxes, badgers, squirrels, stoats, weasels, mountain hares, rats, voles, &c. His boyish interest in birds and animals of all kinds has naturally grown with his years.

On several occasions Mr Speedy has given evidence before Committees of the House of Lords and the House of Commons on matters relating to natural history and sport; and his services have also been frequently invoked as referee in sporting disputes and reference cases. His special knowledge has mainly, if not entirely, been gained at first hand and in the open; and so accurate are his powers of observation and discrimination, that his opinions are generally at once accepted. In this connection the following may be quoted from Mr F. G. Aflalo's 'Sketch of the Natural History (Vertebrates) of the British Islands': "I, for one," Mr Aflalo says, "should be reluctant to pin my faith

unconditionally to the teachings of the class-room as opposed to such downright assertions as are, for example, to be found in Speedy's 'Sport in the Highlands.'"

To sum up, the nature of the man is well shown in his dealings with poachers and criminals. Numerous instances might be adduced, but a mere sample or two must suffice. Some years ago Mr Speedy discovered that poaching was going on in the Craigmillar woods by rabbit-holes being ferreted. Suspecting that he was watched as he went to church, he one Sunday set out as usual, but remained outside for some time, and then started for the woods in question in order to reconnoitre. Nor was he wrong in his suspicions, as he caught a poacher, Will Baxter, watching a burrow into which he had put a ferret, and over which he had spread a number of nets. Charging him with poaching, and saying that he might expect a citation to appear before the Sheriff, Mr Speedy ordered him off the ground. Will fled from justice, but as this was simply punishing the home, Mr Speedy requested Mrs Baxter to let her husband know that if he returned the case against him would be withdrawn, on condition that he should attend the church regularly for three months. The church, where he had never been seen before, was almost a worse punishment to Will than the jail, but as he had lost his work, and was promised employment on the Craigmillar Estate, he had no alternative but to comply; and, to do him justice, he afterwards expressed his gratitude for the consideration that had been shown him.

On another occasion, when Mr Speedy's lifelong friend, the late Dr Paxton of Norham, was staying with him, Duncan Robertson Neish, a notorious burglar, entered the house. Awaking about two o'clock in the morning, Mr Speedy became aware that some one was moving in the room underneath. Jumping out of bed, he heard footsteps, and on reaching the top of the stair, saw a figure disappear out of the door. Calling loudly to awaken the doctor, he started in pursuit. As he was unencumbered with clothing, and in those days swift of foot, the distance between pursuer and pursued was quickly lessened. Getting

near, he saw the gleam of steel in the hand of the burglar, but with his bare feet on the frozen ground he was unable to stop quickly, so went at him full tilt, striking him on the back of the head, which brought him down. In an instant the doctor was on the scene, and they ultimately handed the culprit over to the police. A long series of convictions were on record against Duncan, the last one being seven years' penal servitude for burglary, so he was sent back for a similar period.

After the culprit had regained his liberty, Mr Speedy met him one day and entered into conversation with him, imploring him to give up his evil ways. His reply that he could not get work was quickly got over by the offer of employment. For a time Duncan did well, but one morning a burglary in Fife was telegraphed to Edinburgh, and he was caught trying to dispose of some of the silver-plate which had been stolen. For this he was sentenced to ten years' penal servitude. Serving his time, he again appeared in Edinburgh, and called upon Mr Speedy, who gave him his supper and a shilling, with the usual exhortation to behave. He was, however, subsequently sentenced to twelve and eighteen months on different occasions. After his last conviction, Mr Speedy wrote a biographical sketch of him for 'The Scotsman,' finishing up with the following: "Now that Duncan is past the allotted span of life, it might be as well if he never again regained his liberty; but if he should, what is to become of him? An old man, who has outlived all his contemporaries, hardened in crime, and tottering on the verge of the grave, but who cannot refrain from theft, is a sad spectacle indeed." In view of these remarks, a philanthropic lady and gentleman in Craigmillar Park, Edinburgh, took Duncan in hand after his release from prison, and employed him as their gardener. It was gratifying to Mr Speedy to know that for the rest of his days this whilom burglar lived an honest life, remaining in this situation till he died.

From this brief sketch it will be gathered that Mr Speedy is a man whose acquaintance is well worth cultivating, whether regarded as an

adept in all kinds of sport, as one whose familiarity with the haunts and habits of birds and beasts is wide and extensive, or as a person of a genial and kindly disposition. He is a splendid raconteur, and, having mingled so much with different ranks and classes of society, his mind is stored with incidents relating to men and things.

During his long residence at Liberton Mr Speedy's uprightness, generosity, and loyalty to his friends have ever been prominent characteristics. He is held in high esteem by all who know him, but especially so amongst the poor. Ever ready to extend a helping hand in deserving cases, where a family is overtaken by illness or death assistance is promptly rendered. Calling on the well-to-do in the district, and explaining the circumstances of any needful case, always results in his receiving the necessary funds. To use the words of a liberal subscriber in a recent sad case: "This is practical Christianity." For such a leal son of the Border we wish many more years of usefulness and prosperity.

The Natural History of Sport in Scotland with Rod and Gun.

CHAPTER I.

THE PURCHASE OR LEASING OF A SPORTING ESTATE.

It is surprising how largely many people are endowed with a homing instinct. Quite a number I have known who have "made their pile" abroad, and returned to their native country and purchased an estate, sometimes in the district where in humbler circumstances they spent their childhood. Speculation in rubber, profiteering in war-times, brilliant success at the Bar, and in other ways—some become quickly rich. In such circumstances the ambition of many is to become a landed proprietor. If in their youth they had acquired a love for the rod and gun, a sporting estate is certain to be their goal. Even if it is not the intention to purchase, the leasing of one is very frequently indulged in. Much more caution is necessary in the former than in the latter. In all cases I strongly advise intending purchasers to rent a place for at least one season prior to buying it. Much can be discovered in a season that cannot be foreseen in a few days' inspection. Many estates are now, however, sold by auction.

The first thing, of course, is to ascertain the rent-roll and the public burdens. The number of years' purchase also falls to be considered, in order to find out what return will be got for the money invested. Searches have to be made for encumbrances by a competent lawyer, and when these have been found to be satisfactory, a correspondence between the respective agents ensues, somewhat akin to horse-coping at a country market, though, of course, in writing instead of verbally.

I was once highly amused at the sale of a horse at Muir-of-Ord market. The seller wanted forty pounds for it, and the buyer offered thirty. After a great deal of argument, and running the horse up and down, they adjourned to the hotel for a refreshment, after which they returned, but only to wrangle further about the price. After other two adjournments to the hotel, they eventually agreed, and clasped hands at thirty-five pounds. I do not mean to assert that legal agents indulge in this mode of doing business, but the same bargaining goes on, and in many cases results in a voluminous correspondence before a bargain is struck.

The initiatory step is one fraught with difficulty and no small amount of risk—it matters not whether for leasing or purchase; it naturally creates no inconsiderable solicitude in the minds of those in quest of a sporting estate. The advertisements, which are generally painted in rather attractive colours in newspapers and the lists of shooting-agents, are not always to be depended on. Despite the lesson so well inculcated in the ‘Tommiebeg Shootings’—a work which has now been before the public for half a century—disappointment, and sometimes litigation, ensue season after season. “See everything for yourself or you are sure to be done,” is the advice given in the concluding chapter of the book referred to. After a lengthened experience, I am forced to the conclusion that even seeing “everything for yourself” by no means secures exemption from disappointment.

However flattering and plausible the advertisement or printed conditions may appear, it is of *vital importance* that a personal inspection of the ground, by some experienced and trustworthy sportsman or keeper, be made before the rent or conditions of let are seriously entertained. It is no less important to guard against the inspection being of a perfunctory or partial kind. Much disappointment has been experienced which might and ought to have been avoided had this manifest but oft-neglected suggestion been attended to. No one who undertakes the inspection of a shooting should omit to note down his observations and first impressions of the place. He should see the game-book and note the “bags” for a number of years: how it was obtained—if over dogs or by driving: the number of guns and number of days’ shooting to obtain season’s bag. Inquiries should also be made if there are any “rights of way” over the moor, and if farmers and shepherds are friendly disposed towards shooting tenants.

As a rule, when a gentleman inspects a shooting, the first consideration is the house, the good condition of which is so necessary to the health and comfort of the occupants. General amenity, views, position, altitude and exposure, should all be carefully considered. The size of the rooms, if in good repair, state of the furniture, beds and bedding, carpets and general comfort, should not pass unnoticed. It is not to be expected that professional or commercial gentlemen can be adepts in testing the sanitary arrangements of a shooting-lodge, and yet in the circumstances there is nothing of more importance. They can, however, see if the baths, sinks, and closets are near the outside wall, if the soil-pipes go at once outside, and if the drains are properly trapped and ventilated, so that they comport in every way with modern sanitary principles. When this is the case, with a tall ventilating pipe drawing like a furnace chimney, little danger need be apprehended. But there are faddists who demand that a certificate be produced from a sanitary authority every year, which frequently inflicts a hardship on the proprietor. In out-of-the-way places an inspector or plumber has to be brought a long distance at considerable expense. It is essential, nevertheless, that there be no leakage, and especially should there be children, sewer gas being exceedingly dangerous.

The bracing breezes of the North have special attractions for wealthy Southerners, and though a bracing climate is often very much a question of altitude, it is somewhat difficult to define where the qualities which constitute a bracing climate end and those of a relaxing nature begin, or *vice versa*. The lower valleys of the Tweed, the Tay, and the Clyde are generally regarded as relaxing, and yet when a sufficient altitude is attained on the upper reaches of these rivers, the climate conditions have an opposite effect. Of course, when a place is hemmed in by hills or woods, it cannot be expected to be bracing, yet many places on the West Coast, exposed to the breezes of the Atlantic, are frequently regarded as relaxing. This is, in some measure, accounted for by the atmosphere being much more charged with moisture on the West Coast than in the more inland or eastern counties. As already said, however, I think it more a matter of altitude than aught else, and those in quest of bracing places might do well to consult Bartholomew's pocket-maps, where by different colours the variations in height above sea-level may be seen at a glance.

Another point not to be overlooked in the choice of a shooting with

a house is that there is a sufficiency of pure water. There are few things more disappointing than to discover, after settling down, that the water supply is short, or that it is contaminated. It sometimes happens that a holiday is spoiled and disease introduced into a household from the latter cause. It is apt to be assumed that because regular residents have enjoyed immunity from the effects of impure water, it may safely be used by others. This is a grave mistake, as, while the permanent residents may continue for a time to use impure water with impunity by reason of being acclimatised to the physical conditions of the district, it not infrequently proves suddenly prejudicial to the health of newcomers. Even when the water is pure, a short supply is ever a source of irritation; while its having—as sometimes happens—to be pumped or carted from a distance, is nothing short of an intolerable nuisance.

In many of the better lodges electric light or acetylene gas has in recent years been introduced, but when this is not the case inquiry should be made if there is a sufficiency of lamps. It not infrequently happens that there is a shortage of lighting appliances, and this creates friction at the outset. The same remarks apply to kitchen utensils. It is therefore desirable before a bargain is closed that an inventory should be produced, in order that it may be seen whether there are enough of such utensils for the size of the household, as well as blankets, crystal, crockery, &c.

Along with the house, garden and grounds should receive attention. Ladies, as a rule, are not “sportsmen,” and except perhaps occasionally joining the shooting party on the hill at lunch, are in many cases doomed to the monotony of the lodge. It will thus be seen that nice walks, tennis and croquet lawns, and proximity to a golf-course, where ladies and juveniles can amuse themselves, are a great acquisition. True, with the advent of the motor nowadays, towns and villages can be visited at distances which with horses were formerly never thought of. Those like Queen Victoria, who took an interest in the beauties of nature and graphically described the mountain scenery and historical associations of the districts she visited, will ever find unspeakable pleasure.

I would further recommend that, in looking out for a grouse shooting, facilities for angling should not be ignored. This, many sportsmen, who have no special taste for fishing, are apt to undervalue and overlook. It is after being doomed to remain indoors for several wet days in succession that the advantages of a trouting lake or stream are

fully appreciated. The keenest sportsman is apt to get, it may be, foot-sore or wearied after traversing the moor and mountain from day to day, and longs for a change of vocation. To such a one no change is more enjoyable than an excursion upon a lake in a boat, where trout are numerous and of a fair size. To the over-worked business or professional man, who has been pent up in our large warehouses, counting-rooms, or universities, or who may have been compelled by public duty to give unremitting attention in Parliament or our law-courts, there are few things more enjoyable than an occasional day's fishing in some of those wild, romantic Highland glens, where trout are abundant, and where, being rarely molested, they afford a good basket, especially after a few hours' rain. Many ladies also indulge in piscatorial pursuits.

The difficulties experienced in the selection of a moor are numerous and not without risk, especially as they are nowadays taken early in the spring, and frequently in the autumn, for the ensuing year. It is therefore impossible to foresee the kind of weather that may prevail during the hatching season. How often have nests been destroyed in the month of May by a fall of snow through the hen birds being unable to find them, and newly-hatched chicks killed off by being subjected to three or four days' continuous rain! Severe frost is also credited with destroying the fertility of eggs. I have, however, known a nest, and while ten degrees of frost were experienced during the time the bird was laying, yet she was successful in her incubation and hatched out every egg. There are those who assert that frost does not act upon grouse eggs to the same extent as upon those of pheasants, but this is a subject upon which I do not care to dogmatise. Possibly, if the eggs of grouse are overhung with heather, this may to a certain extent shelter them from frost. It is a curious fact that occasionally, though not generally, grouse have in some places evolved an instinct to cover their eggs like partridges when off feeding. Whether this is traceable to heather now being more often burnt and eggs more easily discovered by rooks, gulls, and other vermin, it is difficult to say.

A long-continued drought on moors that are not well supplied with water also proves disastrous to grouse chicks when small. Extremes of wet or drought are unfavourable to grouse chicks. I cannot dogmatically assert that mortality is caused by the latter, though I have found broods smaller on a dry moor after a prolonged drought; and after the young birds were able to fly, it was noted they left that part of the moor to

where there was water. Though sportsmen, in common with agriculturists, have reason to deplore excessively wet seasons, long-continued droughts in the end of May and in June, if not disastrous, are certainly unfavourable to a regular distribution of birds over the ground. It is, however, surprising how on many moors this evil can be combated by an intelligent and zealous keeper. This has been very clearly demonstrated on several moors in Forfarshire, numerous broods now being found beside water conveyed to dry parts in artificial runnels, where formerly birds were seldom seen early in the season. How often is it found that where a burn flows down and drains a corrie, a mile or more may intervene before another burn is met with? In some cases there is an absence of water springs, which renders the hillside valueless for the rearing of grouse. Where this state of affairs exists, much good may be done by catching the water which flows down the corrie at its highest level, and conveying it in a runnel round the shoulder of the hill and along the hitherto waterless face. Such dry hillsides must be within the knowledge of all who have had much experience of grouse-shooting in the Highlands of Scotland. If there is a good water-supply, a number of runnels should be made at different levels. The first condition is, of course, the existence of a spring at a sufficient elevation, and if the ground operated on is not too porous the experiment can be accomplished with the greatest success. What is worth doing is worth doing well, and an intelligent keeper, with the aid of a levelling instrument, can make contour lines which will greatly assist the formation of the runnels. It is desirable that not too much gradient be given, as a gentle flow is better than a rushing stream, in which grouse chicks may be washed away while attempting to cross. On some of these hillsides heather is dry and stunted, slow in growth, and seldom in bloom. In these circumstances, it would be found beneficial to dam the runnel and allow the dry patches to be irrigated. When shooting at Glenogil in Forfarshire, I was struck with the improvement made by the conveying of water in runnels as described.

The dread of all sportsmen is an outbreak of disease, which the most experienced keepers are helpless even to mitigate. It is always a safer investment to rent a grouse moor when birds are recovering from an attack of disease and are getting up again. My experience is that it takes about three seasons to recover after disease, then three good seasons, and afterwards it goes back again, a cycle of seven to nine years. Disease

is, however, a contingency that sportsmen must make up their minds to face, and which, to their credit be it said, they generally meet without a murmur. There are, however, adverse circumstances which may be, and ought to be, avoided, but which sportsmen who only spend the autumn months upon moors cannot possibly be expected to understand. The destruction of vermin, for example, is a most important factor in determining the size of the bag, as these on a moor are incompatible with good sport, and account in no small degree for the number of barren birds and for those coveys of "cheepers" which are frequently met with.

The instincts of grouse are remarkable, as seen in their looking forward to the rearing of their young; for, as stated, they rarely make their nests among rank old heather. Their habit is to select a small patch of heather, not extending over a few yards, in proximity to some young heather or bent green stripes, and at no great distance from some open spring, or where water meanders down amid bog-myrtle, fog, or gravelly channel. The selection of such places by grouse, however much it may be overlooked by those to whom natural history is a subject of no great interest, is a matter of necessity for the preservation of the species. Were they to make their nests in the centre of large patches of old rank heather, they would become entangled and, in wet weather especially, perish in large numbers. Though the places indicated are the usual ones for grouse-nesting, still true it is they are sometimes discovered in peculiar places, frequently among decayed bracken. On the farm of Overshiels, near Stow, in Mid-Lothian, a grouse nest was found in a ploughed field which was being wrought for turnips. The bird fluttered off its nest as a pair of harrows almost passed over it, but escaping any injury, it soon returned to its nest of nine eggs, where it sat, apparently without fear, while men and horses were working around.

In order to make a satisfactory report, it is desirable that the inspector should have an Ordnance Survey sheet on which the boundaries of the shooting have previously been drawn in by the agent. This will enable him to see altitudes and how the ground lies in relation to other shootings of repute. Should stags be expected, it will be seen from the map what forests are near or contiguous. "Red-deer are frequently on the ground" is a tempting inducement to a sportsman of sanguine temperament. There are, however, moors where deer may be

seen in numbers the greater part of the year, but strange as it may appear, they are not there during the proper time for stalking. Nature and past experience teaches these animals when they get into condition, which is also the time when stalking commences, that they must take care of themselves, consequently they seek the high and inaccessible corries seldom trod by human feet. At that time they roam little about, and if the ground is clear of sheep, grass grows luxuriantly, so that they do not require to wander in search of food. Should a stag by chance stray off his own ground at this season, the moment he sees, hears, or scents anything indicating danger he is off towards the forest, knowing it to be his home. In this respect deer resemble those wild blackfaced sheep of the mountain which, having strayed across the watershed or burn which constitutes the boundary of the hirsle from their own ground, no sooner hear a whistle from the shepherd or a bark from his dog, than they scamper back to their own legitimate territory.

Deer are proverbial for their watchfulness and foresight, and never act without a motive. Birds lay their eggs and sit on them for the purpose of hatching them. Salmon leave the sea and ascend rivers for the purpose of perpetuating their species. Stags, as a rule, do not leave the forest except during the rutting season, or when in search of food, or when driven in terror by the crack of the rifle and the commotion associated with a drive in the forest.

Little stirks, which true sportsmen would scorn to fire at, are frequently shot and recorded in the bags; these are small beasts five or six years old, which, if left till double that age, would have grown to splendid stags. It will thus be seen how desirable it is for the intending lessee to ascertain the number and weights of stags killed prior to the 10th of October in previous years, as well as the dates on which they were killed. This is most important, as in some places no good stags are on the ground till rutting commences, so that sport is thus confined to the last fortnight. Stalking is thus a bit risky, as at this time the weather frequently breaks and sportsmen are kept inside by storm and tempest, or by the mountains being enshrouded in mist, which not infrequently happens.

Another contingency apt to be overlooked by gentlemen inspecting shootings in the spring months is the stock of sheep grazed upon the ground. This is seldom thought of at the time when few sheep are on

the moors. It is, however, a matter of immense importance to sportsmen. Let it be assumed there is a good stock of game, and the nesting season all that can be desired. In the latter part of May hatching has taken place, and early broods are by this time following the parent birds. This is also the period for gathering the sheep to the "fank" for the purpose of castrating the lambs. Those who have witnessed a gathering of a flock, and have seen them driven in a solid body across a heathery hillside, must at times have speculated as to the probable fate of grouse eggs and newly-hatched chicks unable to get out of the way. I have seen both eggs and tiny chicks thus destroyed. About the middle of June a similar course of congregating is adopted for the purpose of clipping the yeld stock. By this time, however, the early coveys are on the wing, but late ones will no doubt suffer to some extent. A careful shepherd drives as much as possible on bare ground for the ease of his sheep and in the interest of grouse chicks. The weaning of lambs takes place about the middle of August, and collecting in the stock must again be resorted to. The first dipping also takes place at this time, but, generally speaking, young birds can now take care of themselves. Except for the disturbance of moors at this period, when the "keen edge" is on sportsmen, no damage is then encountered. At the same time it is well for sportsmen to keep in view the different dates for sheep gatherings, as it is desirable when inviting guests and arranging grouse drives to avoid as far as possible clashing with them. The end of September and beginning of October is the time for gathering to send stock to market. A certificate of a second dipping must accompany all sheep for sale.

Apart from the damage done to eggs and young grouse in the hatching season on a moor heavily stocked with sheep, the feeding of birds is impaired by the young shoots of heather being devoured by the sheep. Not only so, but when old heather has been burnt, the young shoots springing from seed are frequently pulled up by the root. When it can be arranged, it is an advantage to have the stock kept as much as possible off the moor during the nesting season.

It must not be supposed that the above remarks are intended to convey the idea that sheep on a moor are detrimental to grouse. On the contrary, it has been proved that the absence of sheep has had a prejudicial effect. Some gentlemen, anxious to have a very large stock of grouse, removed sheep off their moors with the view of having a superabundance of food for the birds. The result, however, proved it

was a mistake, and a limited quantity of sheep had to be put back. Sheep make tracks through the heather on which grouse chicks follow the parent birds. Any one inspecting a moor must necessarily in the month of June examine these carefully, and there he will find a sufficiency of droppings to guide him in a large measure as to the stock of birds on the ground. Besides the advantage of making tracks through the heather, the droppings of sheep tend to generate insects which grouse chicks, being largely insectivorous, devour greedily in their babyhood. I have frequently, when unperceived, watched with a pair of binoculars a brood of grouse sunning themselves in a dry moss-hag, and was interested to observe the eagerness and dexterity with which the tiny chicks chased and captured the various flies that frequent such places.

The burning of heather is a most important point in the management of a moor. It should be burnt in strips or patches, roughly about ten per cent annually, so that there is always plenty young heather for the birds to feed on. This is a simple matter in theory but not so easy in practice. No hard-and-fast rule can be laid down as to the area, so much depending on ever-varying circumstances. Should the moor have been neglected and a large area require to be burnt, long narrow strips should be run through it. In my young days the burning of heather was pretty much entrusted to shepherds, who burnt what a box of matches, aided by the winds of heaven, would enable them to burn. I have known fifty acres on one mountain-side destroyed by one of these conflagrations, and it was difficult to convince a sheep farmer or shepherd that twenty acres in one place and one acre in twenty places are synonymous as far as sheep-grazing is concerned. It is, however, another and a very different thing for grouse having the area burnt in small patches instead of one large one.

It is an interesting sight in the first ten days of April to travel on the Highland Railway, should the weather be fine, and see the heather ablaze, especially as daylight is closing. It is not often that fine weather is experienced at this time on the higher altitudes. Much snow frequently falls both in March and April, and suitable weather for burning not always got, so that keepers and shepherds work early and late in order to get as much burnt as possible. The period for burning being short, it is most essential that the heather should be burnt satisfactorily in order that it spring up again as quickly as possible. It is well known that

the more frequently heather is burnt the quicker young shoots make their appearance.

In high altitudes, or on steep ground facing the north, much heather is very often still under snow, so that burning is impossible prior to the legal time having expired. True, an extension of the burning season can be obtained, on application to the Sheriff of the County, until the 25th of April. I do not like this arrangement, having seen many nests destroyed by the fire. Taking into consideration the difficulty of getting moors adequately burnt in the proper season, it is most desirable that autumn burning should be resorted to. It sometimes happens that beautiful weather is experienced in October, and while it is on the statute-book that the legal time for burning does not commence till November, I have never heard of exception being taken to those who burnt earlier. Much might be burnt in autumn that cannot be overtaken in spring, and in view of the fact that burning of heather is essential in the interest of the moor, it certainly should be attempted. Perhaps some member of Parliament will endeavour to have this anomaly redressed. Of course, with the sap in the stems, as a rule, it is not burnt so clean as in spring. Advantage should, however, be taken whenever there is a chance, and every available opportunity utilised to get ground burnt in those places where it frequently cannot be done in spring.

A spare besom for dashing out the flame should always be handy, as, if one gets broken at a time when much extinguishing is necessary, the fire might get beyond control, and a large conflagration ensue. An iron hoop in triangle-shape covered with net-wire is preferable to a birch besom. With it you can rub along the burning ground, which extinguishes better than by lashing the flame, which in a measure fans it, except on the part where the besom strikes.

When heather is very old and rank, it will be found that at the roots there is a great profusion of leaves and seed that have fallen off year after year. These are not solidified, and being covered from the air, do not of course germinate. When burning does take place all these are devoured by the fire, and the heat is such that the roots are also destroyed. The result is that years elapse before seed blows on to the ground and takes root. When short heather is burnt the heat is not sufficient to destroy the roots, and as a consequence it quickly springs again, and a considerable growth is frequently seen the same year

in which it has been burnt. When very old heather is burnt it frequently does not appear again, but gives place to other coarse vegetation. When this is the case, keepers and shepherds might search at the roots of old "cow heather" to collect a quantity of seed and scatter it on the recently burnt ground.

In company with Dr Wallace, Professor of Agriculture in the University of Edinburgh, I made a pilgrimage to Bonaly on the Pentlands, and on the surface of the ground beneath old "cow heather" found a superabundance of seed. It was, however, mixed with decayed heather shoots and leaves in a loose state, and being overshadowed could not germinate, even had it been trampled firm. I differ somewhat in opinion from the learned Professor on this point. In his interesting book on 'Heather and Moor Burning for Grouse and Sheep,' he says: "Millions of living seeds will be found stored in this granary of Nature, . . . but because the seed cannot reach the solid earth under conditions that permit of its germination and seedling survival," young shoots do not appear. "It has perforce to wait till the loose material on the surface decays into humus and becomes consolidated by trampling and settling into a suitable seed-bed." As already said, it is feared that all seed below old heather when fired is destroyed by the devouring element.

Both the Professor and I collected some seed which we brought home and sowed in flower-pots in suitable soil. He was, however, more practical than I was, and tried it in different ways—by not covering it, but simply pressing it firm in the pot, by lightly covering it, and by giving it a heavier covering. Uncovered seeds gave the best results. I had evidently put too much covering on the seed, but after reading the Professor's book referred to, my subsequent experiments gave satisfactory results. It will thus be seen that if seed was scattered on ground where old heather has been burnt, the trampling of sheep and deer may cause germination, and the heather much more quickly established than by waiting for seed to blow on to burnt parts. This at any rate might be tried on a small scale as an experiment. Molehills are usually plentiful on our moors, and I would suggest that seed be sown and trampled on them. Any quantity of seed can be collected as described where old heather is found.

It is surprising the length of time heather seed will lie dormant and subsequently germinate. Where trees have been planted on moorland,

so soon as they grow and shut out the sun and air, all vegetation beneath them quickly dies out. After, it may be, fifty or a hundred years, and the timber cut, heather quickly establishes itself, so that it is evident seed has been in the ground all the time, and germinates with the advent of light and air.

As already said, if heather is allowed to become wood before it is burnt, the chances are that it will never again grow to be of any practical use. In many parts of Scotland heather is now largely disappearing, and giving place to bracken and other coarse vegetation. In places where old stick-heather has been burnt, if there be bracken near hand, the seed blows on to the burnt ground and quickly establishes itself, to the exclusion of our beloved purple heath. Especially is this the case in the Rob Roy country; and the growth of bracken is spreading rapidly in most parts of Scotland, causing a serious loss to both sheep farmers and sportsmen, among whom it is creating not a little alarm. Rewards have been offered by the Highland and Agricultural Society and others for a scheme to mitigate the nuisance or prevent further incursions, but so far no practical remedy has as yet been discovered except at enormous expense. What, then, should be done to avert this "curse of the bracken" is the question pressing for solution. Without for a moment attempting to dogmatise on the subject, I am acquainted with a grouse moor in Forfarshire where money has been spent in cutting over the bracken before it is allowed to seed, with beneficial results. One cutting in the season is insufficient, and care should be taken that it is not allowed to seed, especially if burnt ground be in the neighbourhood in a line with the prevailing wind. A few consecutive years' cutting weakens the plants considerably, and affords facilities for heather to establish itself on burnt places.

Mr Fergusson-Buchanan of Auchentorlie spent a considerable sum of money in cutting bracken for several years, and is now rewarded by a large area of beautiful grass instead of useless bracken, thus proving the accuracy of the above remarks.

Some years ago, when on a visit to Ardlussa, in the Island of Jura, I took part in an afternoon's rabbit-shooting. A profusion of bracken was growing on a considerable area contiguous to a wood which was full of rabbit-burrows. A clearance had been cut between the bracken and the wood, and as the ghillies beat along, rabbits afforded excellent sport as they hurriedly scampered across the clearance, which was about a

dozen feet in width. Three or four years after I again visited Ardlussa, and was surprised, instead of seeing the bracken, a magnificent crop of potatoes in their place. This demonstrates that much good land could be reclaimed from bracken.

The grazing of cattle on grouse ground in the nesting season is also detrimental to game prospects. While inspecting a shooting, accompanied by the keeper, we walked through a wood before getting on to the heather. Pheasants were plentiful on the low ground, and a considerable distance up the hillside the keeper pointed out a hen which he stated was sitting on fifteen eggs. About fifty young Highland cattle were grazing on the hillside, and on coming off the moor we again passed where the pheasant was sitting. Not seeing her, we went close to the nest and discovered that eight of the eggs were broken, the footprint of a stirk in the centre of the nest revealing the cause of the catastrophe. Damage is also done when cattle in large herds are pastured on the moors by the animals lying down on the nests, and I have seen the nests of both grouse and blackgame destroyed in this manner.

It is not the intention to create an impression that stock-grazing should be subordinated to sport. Most of the contingencies here referred to in the interest of the farmer are unavoidable. At the same time the mischief may be minimised, or in a large measure averted. By a kindly feeling between gamekeepers and shepherds, and a little "give and take" practised on both sides, much good may be done. It is, however, to be regretted that very frequently each regards his own branch as of prime importance, and in no way are they inclined to co-operate for the mutual advantage. Even when the moor is in the proprietor's own hands, jealousy often exists between the farm-manager and the keeper, by which the interests of the game are generally sacrificed. When the laird is a sportsman himself and takes an interest in the game, heather receives proper attention. This is exemplified in the management of the beautiful moors of the Duke of Buccleuch in Roxburghshire and Dumfriesshire, of The Mackintosh in Inverness-shire, and many others.

It has again and again been proved to demonstration that, by driving the birds and careful burning and cropping of the heather, grouse have increased amazingly. Incredible as it may appear, on some of the moors in the south of Scotland more grouse have been killed in a day on a single beat than were killed fifty years ago on a dozen beats in a season. This is clearly traceable to careful management of heather and

as the result of driving. The same remark applies to moors in the North. Besides those belonging to The Mackintosh already referred to, there are others in the Spey valley extending from the river over and across the Dulnain. Pitmain, which was generally regarded as a five-hundred brace moor under the management of a decent old-fashioned Highland keeper, quickly improved when he was succeeded by an energetic man from the Borders experienced in modern methods. In a few years, by careful management, burning the heather, butting the ground, and driving the birds, the bag has been quadrupled. Newtonmore affords another illustration. A gentleman accustomed to shoot on the Yorkshire moors took this place, and seeing its advantages after a trial, secured a long lease. Here again the bags have been multiplied by four. Numerous illustrations could be given, but it would be superfluous to add more, enough having been given to show that if gentlemen own heathery moorland and have not a goodly number of grouse it is their own fault. On very extensive moors larger areas must necessarily be burnt, otherwise it would be impossible to get over the required area, burning in wet springs being rendered difficult.

As already said, it has been proved to demonstration that by judicious burning of the heather, and by driving, grouse have increased enormously on our moors. It is conclusively proved that the same treatment of heather is conducive to the wellbeing of both sheep and grouse. The experiments and statistics of Sir Hugh Shaw-Stewart, Bart., as recorded in the 'Scotsman,' are well worth reproducing. His moor at Ardgowan, near Greenock, extends to 5500 acres, though only 4000 were in his own hands, and it was on this area that the improvement on sheep took place. Prior to 1906 there had been no systematic burning, and in places it was possible to walk for a couple of miles through heather up to the knees. In 1906 burning on a large scale was commenced, and in a few years all rank heather had disappeared. Subsequently, the moor was burnt in accordance with modern methods. In addition to burning, Sir Hugh spent a considerable sum on the cutting of drains, which no doubt assisted in enhancing the value of the moor. As is pretty generally understood, where old stick-heather had existed, young shoots did not appear for four or five years, but where it was not old it quickly showed itself.

The improvement in the management of the moor quickly told in the quality and number of sheep it produced. In 1906 the average

weight of wool per head was $4\frac{1}{2}$ lb., and in 1915 it was 1 lb. more. It was a rare thing at that time to see a rough belly when clipping, and the points of the wool along both sides of the sheep looked as if it had got a hard dressing with a rough brush or comb. Apart from the value of wool lost by wastage caused by the long heather, the general health of the sheep improved without the loss of the under-body wool, and the increase in numbers demonstrates better heather conditions. The prices speak for themselves.

Sheep sold off the moor—

1910. 543 sheep at 14/	1913. 583 sheep at 19/6 $\frac{1}{2}$
1911. 548 „ „ 15/6 $\frac{3}{4}$	1914. 742 „ „ 20/1 $\frac{3}{4}$
1912. 605 „ „ 16/2 $\frac{1}{4}$	1915. 757 „ „ 22/6 $\frac{1}{2}$

In addition, fat lambs, sold off this moorland in the years mentioned, realised a very large percentage over the average prices at Paisley market.

In regard to grouse, the area of moorland, as already stated, is 5500 acres. The number of grouse killed were—

1909 . . . 844	1913 . . . 1696
1910 . . . 1448	1914 . . . 1739
1911 . . . 1899	1915 . . . 2135
1912 . . . 1940	

It will thus be seen how steadily the improvement has been maintained since the burning of the heather began to show results. The same shooting policy was pursued each year, care being taken to leave a sufficient stock to breed.

If, in addition to grouse, partridges and pheasants are also required, it is necessary there be cultivation, for, as is well known, both these birds will stray to stubbles, turnip and potato fields. It is a remarkable fact that in mountainous districts, where there is cropping in the valleys, pheasants breed far more successfully than on entirely cultivated districts. There are places I am acquainted with where a thousand pheasants can be bagged without rearing, whereas in many places where a thousand are reared that number cannot always be secured. It is desirable that, in looking out for pheasant-shooting, woods are upon the ground which give good cover for holding birds, and suitable places

for driving them out high over the heads of the guns placed outside. Other coverts should be noted where the birds that escape are likely to fly, and which can subsequently receive attention. Care should also be taken to see that woods are properly fenced, otherwise sheep and cattle get in; and where this is allowed, shepherds and their dogs can go in daily, as well as rabbit-catchers to trap the rabbits. This causes disturbance which, as will be understood, is neither agreeable nor desirable.



Suspicion.

CHAPTER II.

GROUND VERMIN.

THE acquirement of permanent good sport involves care, labour, and expense.

The first essential condition is a landed estate possessing features favourable to game. In some cases these are amply provided by nature; and when this is not so, they may frequently be supplied by artificial means. By judiciously arranged plantations, the cultivation of broom, whins, &c., and the careful burning of heather, very much can be done towards the rearing and preserving of game. But even after all has been done to encourage game to settle and breed in any given locality, the result will prove disappointing if a sharp eye is not kept on the destruction of vermin. As soon as the game begin to increase, both ground and winged vermin will make their appearance, although it may be difficult to explain how or whence they have introduced them-

elves. As, with the exception of egg-eating birds, game suffer much more from ground than from winged vermin, I shall here direct attention to some of their more striking peculiarities, and submit a few hints as to the means to be employed for their extirpation.

Darwin, in his 'Origin of Species,' says : "There seems to be little doubt that the stock of partridges, grouse, and hares on any large estate depends chiefly on the destruction of vermin. If not one head of game were shot during the next twenty years, and at the same time if no vermin were destroyed, there would, in all probability, be less game than at present, although hundreds of thousands are now annually shot."

This was clearly exemplified during the over-four-years' world war, when most of the gamekeepers were abroad fighting for their country. Vermin, both ground and winged, increased in incredible numbers, and game considerably decreased in consequence.

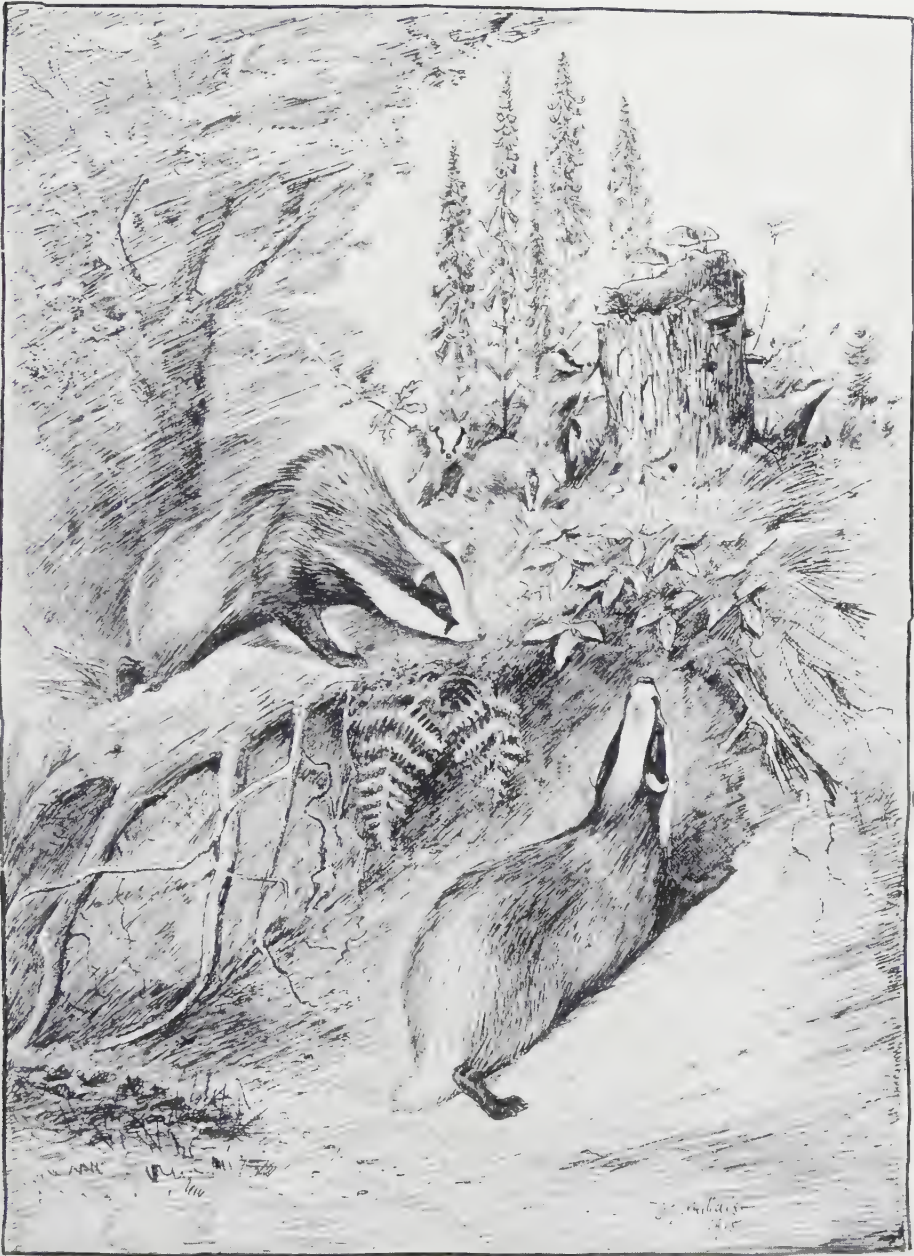
THE BADGER.—Among the most formidable and difficult of ground vermin to deal with is the badger. It is the largest, strongest, and fiercest of our British wild beasts. Like the bear, it hibernates, remaining in a semi-dormant state during the winter. When it awakens from its hibernation in the spring, it is thin and greedy for food, and travels long distances in search of it. Badgers devour quantities of young rabbits, digging perpendicularly and surely on the nest. While shooting rabbits on the banks of the Tweed, I was fortunate enough to perceive one in the act. Looking over a steep place from the lee side, I was surprised to see the hind-quarters of a badger in a perpendicular position, and sending showers of sand all round. Being out of range, my first impulse was to stalk him ; but in this I was disappointed, as the hallooing of a fisherman who had seen a salmon crossing the ford caused him to look up and listen. I was at once discovered, when he instantly scampered off among some whins. On approaching the spot where he had been at work, I found a hole about eighteen inches deep, and on pushing a stick down, found that he had been within a few inches of a nest of young rabbits about a week old. I have seen places where the badger had dug down on a rabbit's nest to a depth of three feet. From this we learn how keen their scent must be, as in every case which has come under our observation they had dug straight down on the nest.

Eggs are also eaten with great gusto by badgers, hence their

destructiveness in pheasant preserves. While visiting some traps in the early morning on the Ladykirk estates, my attention was attracted by a peculiar noise from a partridge. Going stealthily towards the place from whence the sound proceeded, I discovered a badger feasting on the partridge's eggs. Setting my retriever on it, a severe struggle took place, which resulted in our despatching it with a stick. On another occasion I had set, in a large wood, a number of traps, baited with eggs, for carrion-crows and magpies. When I visited the traps after daybreak, I found that the eggs had been removed from three of them without their having been sprung. From a careful inspection of the ground, I saw by the footprints with the five toes and long claws who had been the depredator. On approaching the fourth trap, I found a large dog-badger secured, and having with me a fox-terrier, which had been engaged in many battles with badgers, he ran and seized him whenever he got within sight. Wishing to keep the "varmint" alive, I crossed a field to a farm-steading for a sack, and on my return found the dog still hanging on. To put the badger in the sack without putting the dog in also was more than I could manage, until I got the assistance of a farm-labourer.

Badgers are also fond of young wasps, and often dig their nests out of the ground in the same manner as they do rabbits' nests. The comb they generally leave scattered all around, but with the young wasps carefully picked out. I presume their long rough hair protects them from the stings of the wasps. At Ladykirk, in my young days, incessant warfare was kept up against them by the keepers, in consequence of the destruction they committed among pheasant eggs. While walking one evening up the side of the river Tweed, opposite the ruins of Norham Castle, I in the dusk descried on the skyline of a grass field five badgers foraging, evidently picking slugs off the grass. Being armed with a gun, I slipped quietly round and got between them and the wood. No sooner was I perceived than they scuttled past, making for the covert. Being at close range and broadside on, the two largest were shot dead, while a third was seized by my retriever, which held on till I got a paling-stob out of the hedge and despatched the "brock."

As badgers and foxes occasionally frequent the same "earths," there is danger in a fox-hunting country in setting traps, from the risk of a fox getting into them. In such circumstances the method usually adopted is termed "sacking the badger." A moonlight night is generally



Foraging.

voice husky with excitement, I replied, "No, I'm no' feared." I saw the keeper's head and shoulders between me and the sky, and when he disappeared I felt as if my last hour had come. It was a dark ravine closely overshadowed by trees. The agony of that night haunts me still. The glen was, and I presume still is, a favourite resort of tawny owls, and that night I could safely say, in the words of Tannahill, that

"The cry o' hoolets mak's me eerie."

I heard the yelping of the terriers in the distance, and felt some relief, as I thought the keepers would come to me. I strained my ears to listen, but the yelping of the terriers died away and no sounds were audible except those of nature—the loud hooting of the owl, the sighing breeze, the murmuring of the burn wimpling down the glen, and the bleating in the distance of sheep which had evidently been disturbed by the keepers and terriers. The moon disappeared beneath the horizon, and the inky darkness could almost be felt. I am not ashamed to confess that I was terribly afraid, but as time wore on I must have become somewhat reconciled to the situation, as I fell sound asleep. How long I slept I know not, but I awakened shivering with cold. Presently I heard a rustle among the grass and leaves, and a low grunting noise. I sprang to my feet and screamed with terror. In doing so I was the means of frightening a badger, which bolted for the hole, and immediately the tugging string gave indications of his entanglement in the sack. What was to be done? I dared not go near the sack, as I had some idea of the cruel teeth of badgers from wounds inflicted on the terriers in previous fights. I held on to the string and yelled at the pitch of my voice, but got no response except the echo from the opposite side of the glen. To have run away would have been arrant cowardice, so I cut the string from the branch and rolled it round my arm until I got close to the sack. I knew the running noose would secure the mouth of the sack, and as I got near I found most of it in the burrow, with the mouth kept outwards by the string. With considerable difficulty I pulled sack and badger out, taking care to twist tightly the sack until I got the badger in the bottom unable to move. I then threw him over my back and made tracks for home, leaving the other sacks in the position we had placed them. On the way home I felt like Robinson Crusoe after seeing the footprints in the sand: I took every bush I saw for a man or a ghost.

As I proceeded the clock on the stable tower struck three, and I knew that I must have slept for some hours. Where by this time were the keepers with the terriers? I had forgotten about them in my sleep, and events since I awoke had entirely driven them out of my head. On nearing the kennels the dogs began to bark, and I soon discovered that the keepers were home. Why, I wondered, had they gone home without me? Little did I then think it was an organised plot. Scenting the badger, the entire kennel—from the loud bark of the retrievers, pointers, and setters to the yelping of the terriers—kept up an excited pandemonium. The bell rang again and again in vain, no attention being paid to it. Why a bell should be rung to make the dogs quiet may not be generally understood. A bell is fixed in the kennels with a pull at the keeper's bedside. When the dogs bark during the day this bell is rung, and the keeper then goes out with a whip and lashes them into their bed. Learning to associate the bell with the whip, they generally become quiet with the first ring, but on this occasion it had no effect. Bassett, the head-keeper, had therefore no alternative but to get up, and on coming out he cried, "Who's there?" Amid the noise I shouted, "It's me, and I've got a badger." With his assistance I had it secured in a box, and went home to bed. As the news spread on the following day I was regarded as a hero, but the awful agony I suffered from fear was carefully suppressed, and I do not think has ever been divulged until now.

In former times the badger was subject to the most horrible cruelty. "Drawing the badger" and cock-fighting used to be favourite pastimes, even well on in the nineteenth century. "Drawing the badger" never failed to gather a crowd, a badger frequently being kept for the purpose at low public-houses. This cruel sport, however, was prohibited by Act of Parliament in 1850.

An amusing story used to be told of a young man in the Yetholm district who had a well-bred young dog which he purposed training to "draw the badger." The story is of some antiquity and perhaps not altogether to be depended upon. When the dog was about eight months old the lad induced his father to put a badger's skin over his head and shoulders and crawl into the room on his hands and knees to see how the dog would act. Being well bred, it rushed at its supposed natural enemy and fastened on to the nose of the old gentleman, who shrieked out murder at the pitch of his voice. Without attempting to render

assistance, the young scamp cried out, "Bide it, man—faither, bide it, man; it'll be the makin' o' the pup."

Though badgers, as a rule, remain underground during the day, I know several instances of their lying out, and have seen one found and worried by fox-hounds in a whin covert five miles from an "earth." Badgers are regarded by many as inoffensive, and as feeding only on herbs, snails, &c. Others assert that, from the carnivorous character of their teeth, they must eat flesh. I have already shown that they eat eggs and young rabbits; and though we cannot give an illustration in proof, there is no doubt that young hares, pheasants, and partridges will also be included in their bill of fare. That they eat the flesh even of their own species is beyond question—in illustration of which I submit an incident that some time ago came under my own observation. From the fact that the period of gestation in badgers is supposed to be longer than in any other British animal, I had traps set for them on the banks of the Leader to capture a couple in order to ascertain, if possible, how long they carry their young. This, so far as I am aware, had never been satisfactorily demonstrated. The first night one was caught; but unfortunately, through a flaw in the iron, the chain gave way, and the badger escaped, carrying the trap at its foot into another "earth" nearly a mile distant. With the aid of a retriever I had no difficulty in tracking it to this retreat; and knowing that, as a rule, no animal will stay in a hole with a trap at its foot, we were on the outlook for it, being aware that its track would be easily discerned by the dragging of the trap. I failed, however, to find it, and as a heavy fall of snow occurred shortly afterwards, I gave it up for lost. Some time after the snow had disappeared, about a quarter of a mile from the hole, I came upon the carcass of a badger beginning to decompose, and partly eaten by some animal. The trap was still adhering to its foot, it having, as is customary, come out of its hole to die. Having frequently had occasion to pass that way, I noticed more flesh eaten off the carcass, and as it was lying in a sandy place I distinctly saw the tracks of other badgers. Curiosity caused me to rake the ground with a branch, in order to see distinctly the footprints of any animal that might go near it. As the result of our experiment, I saw the following day the tracks of badgers only, while more flesh was eaten off the carcass.

The amount of food eaten by badgers, and the large quantity of

water they drink, are remarkable. I particularly noticed this while keeping them in a kennel. One badger ate four rooks each night—heads, feet, feathers and all, with the exception of a few of the large quills, which were all that was found in the morning. If a fifth was put beside it, parts of several were left. It seemed to be very fond of dog-biscuits and greaves, and, as already mentioned, drank a large quantity of water. Much discussion has taken place as to the lengthened period of gestation in the badger. The exact time they are pregnant has never up till now been satisfactorily demonstrated. Paragraphs have from time to time appeared in 'The Field' that badgers have brought forth young after being kept for fifteen months in solitary confinement. This, however, I do not believe. My friend, Mr Paterson of Rutherford, possessed a number of badgers, three generations having been bred in captivity. Finer pets I never saw. They are very tame, eating out of my hand, but they are very shy if anything unusual attracts their attention. In a recent visit I tried to photograph them, but this was by no means easily accomplished. Mr Paterson informed me that the operation would have been managed with less difficulty during the long summer days, but as the time for hibernation approaches they become restless, excited, come little out, and scarcely eat any food. In summer they eat a great quantity of food, but for four months in winter hardly any. Even if not dormant, they move little about, and are seldom seen during the winter. For six weeks I have known their earths stopped and covered with snow. At the same time, I have occasionally seen their footprints in snow, but not during a settled storm with hard frost. The period of gestation proved by Mr Paterson is from the beginning of July till the end of February or beginning of March. I have known four in a brood, and possibly there may be more; two and three are common. When the young are born they are void of hair, and, like the weasel tribe, cannot see till six weeks old. When they begin to move about they grow very rapidly, but do not breed till two years old.

It has been asserted that badgers and foxes will not remain in the same earth. This I know to be at variance with fact, though I cannot speak minutely of the domestic arrangements of fox and badger. The burrows are of great depth, as the tons of earth drawn out testify, and sometimes have a number of entrances. I have frequently ferreted badger holes, but never bolted a badger. On one occasion, however,

two foxes bolted quite twenty yards from where the ferret was put in. Cats, wild and tame, also bolt readily from ferrets.

From the fact of the badger being nocturnal in its habits, few people ever see one, even in districts where they are plentiful. A great deal has yet to be learned regarding the habits of this quaint night-pig, and much nonsense has been written on the subject. Although it generally adheres to the district near its burrows, they are occasionally caught and worried by fox-hounds several miles from an "earth." One was also shot when crossing a "ride" in a wood when cover-shooting in Lauderdale, the sportsman who killed it taking it for a young bear.

Notwithstanding their short legs, badgers run at a remarkable pace. I have several times in my younger days come upon them, and, giving chase, found I could keep up with them for a couple of hundred yards, but in every case they soon distanced me in the race.

The badger is by no means generally to be found in this country, and there are few game-preservers who will regret its absence in their locality. At the same time, its wholesale destruction would be a subject of regret, more especially as it is now becoming one of the rarest of the fauna of our country. As it is easily caught alive, I would suggest that proprietors on whose estates they are plentiful might afford facilities for having them transferred to other parts of the country, and thus prevent their extinction, which is not at all improbable. The traps of rabbit-catchers are instrumental in reducing their numbers. It is gratifying to learn that some proprietors are now reintroducing them on their estates, and giving orders that they are to be protected. Among these may be mentioned the Earl of Rosebery, who has turned them out on his estate, and on different occasions I have turned them out at Craigmillar.

The fables associated with the history of the badger are manifold. In Bell's 'British Quadrupeds' the badger is described as "free from the cunning and rapine of the fox, and the fierceness and treachery of the wild cat." An old sporting Dictionary, published in 1696, says there "are two kinds of badgers—one eating flesh and carrion like a dog, and the other roots and fruit like a hog." In Bingley's 'Quadrupeds' (1809), the statement is made that it is not yet satisfactorily ascertained "whether he lives on animal or vegetable food." Macgillivray, in 1838, describes the badger as a "perfectly harmless animal." With all due respect to the authorities quoted, and though I may still have a great

deal to learn of the habits of badgers, I long since discovered that they are omnivorous. I have found wheat in their droppings, and, as already said, their whereabouts in a district soon becomes known by wasps' nests being dug out, and grubs picked out of the comb which is left scattered about.

The introduction and preservation of badgers by Lord Rosebery has already been referred to. They were found, however, not to be so innocent as many people imagine. Pheasant-rearing being practised on the estate, the badger proved himself to be a daring enemy to the keeper, and, besides killing the young pheasants, attacked the hens in the coops and carried them off. His favourite method of attack was to scrape underneath the coop and overturn it, when a general massacre ensued. The strength of the badger is so great that it sometimes simply bent back the bars in front of the coop and tore the hens out. The badger's method of working and slaughter was easily distinguished from that of the fox, and its cunning proved equally as great, for though traps were set and a strict watch kept, the animal was never captured.

THE FOX.—Another destructive enemy of winged and ground game is the fox, which is usually treated as such where no "pack" is kept. The cunning and sagacity displayed by Reynard in pursuit of his prey are proverbial. Hares, rabbits, and even the most wary of the winged species, are unable to protect themselves from his stealthy approaches. The cunning of the fox is so well known, and so much has been written on the subject, that I shall only touch briefly on a few incidents with which I am acquainted. Unfortunately, the time when they are rearing their cubs is also the time when game of all kinds are breeding, and when they more easily become the prey of this cunning marauder. Nothing comes amiss to him, from the farmer's goose or turkey down to moles, blackbirds, linnets, and the smallest of our birds. When the cubs are small, the vixen goes several times a day to the mouth of the hole, when they come out and suck her, exactly in the same manner as pups do when their mother is standing on her legs. When unobserved on one occasion watching a vixen nursing her young, I gave a sharp whistle, and in an instant she skulked into the brushwood, and the cubs as speedily bolted into the hole. It is a proof of the remarkable instinct of the fox, that no sooner does the dog or bitch become aware that their breeding-hole is discovered than they remove their

progeny, and sometimes to a long distance, rarely if ever allowing a single night to intervene. As already observed, the amount of game destroyed by one litter of foxes is very great, and this can be to a large extent ascertained by the numbers of wings and limbs which are to be found at or in the holes. The mole seems to be a dainty morsel with them, and a great many fall victims to the rapacity of Reynard. A litter of foxes, not quite full-grown, made their appearance in a splendid grouse-corrie in the Dalnaspidal shootings, having evidently been disturbed elsewhere. One of them was seen by a shepherd, who communicated the information to the keeper, who—the district not being a hunting one—lost no time in having a number of traps set in the locality. I accompanied him on his rounds some days after, and found two of the cubs trapped nearly a mile apart, and at one of them three moles and a young hare were laid down, no doubt by the vixen, guided by maternal instinct; while at the other one we found two moles, a ptarmigan, and a dotterel. It may be asked why the traps should have been set for several days before any of the cubs were caught. The reason is obvious: their scent is so keen, that they no doubt associated the smell of the keeper with the traps which he had handled and the dead hare used for bait, and thereby suspected danger. The keeper, being thoroughly up to his work, took care to have the traps set where they could be seen at a distance from an eminence with the telescope, well knowing that his visiting the traps daily would have destroyed any chance of success. After some days had elapsed, and the scent of man had evaporated, the vermin no doubt became bolder, and at length ventured on the treacherous trap.

The manner in which the fox catches grouse or other game-birds resembles very closely the action of a pointer or setter. An illustration of this recently came under my notice. While grouse-shooting on a Mid-Lothian moor, I had occasion to call upon a shepherd in the valley before uncoupling the dogs and commencing operations. It was one of those beautiful mornings which the sportsman and the tourist so much appreciate, affording by the clearness of the sky and purity of the atmosphere every advantage for an extensive view. On emerging from the shepherd's hut and looking round, we descried an object on the hillside directly opposite, the nature of which, from its peculiar attitude, I was unable to make out. It stood, or rather crouched, on a piece of bare white ground, with a dark spot of heather directly in front, and



Catering for Cubs.

on further inspection I discovered it to be a fox pushing his way, pointer-like, towards the heather. His movement was slow, stealthy, and direct. But just as he was going to spring into the bush an old cock-grouse darted from the heather within a few feet of his nose. Instead of making a spring at the bird, Reynard drew back with an air of disappointment, and, looking as if he had been caught in some discreditable affair, skulked into a cover within twenty or thirty yards of the spot where he had been discomfited. From what I saw on this occasion, I feel satisfied that, with his keen scent, his light and soft movements, and the fact of his colour generally resembling his hunting-ground, the fox can have no difficulty whatever in capturing any amount of grouse he may set his heart on, more especially up to the end of September. In many hunting districts foxes are even more stringently protected than game. When rearing pheasants in my young days lamps were kept burning all over the field at night, and in the centre a large fire blazed, by the side of which I was supposed to sit and watch. Being hard wrought during the day, on one occasion I had fallen asleep. I was, however, awakened by the screaming of hens in the coops, and mechanically seizing the gun and cocking it, jumped to my feet. Though still very early, it was broad daylight, and I espied a fox pouncing on and killing the pheasant chicks which were squatted among the grass. I ran towards him, and so intent was he on his merciless work, that I was within easy range before he observed me, when he quickly scuttled off. The gun was at my shoulder and my finger on the trigger, but prudence restrained me. To have shot a man there might have been forgiven, but a fox—never! On making search, I discovered that thirty-nine chicks had been killed and pushed down among the grass, but there was no evidence that Reynard had either devoured any of them or carried any away.

This incident explodes the theories of over-zealous fox-hunters, who frequently assert that foxes do little or no harm among pheasants.

Even in winter foxes seem to have no difficulty in catching their prey. Another illustration in point. Having occasion to cross a piece of moor in the early morning, after a fall of several inches of snow, I came upon the track of a fox. Curiosity tempted me to follow it, in order to perceive what he had been about. He had been going at a slow pace, as was discoverable from the nature of the impression made by his footprints in the snow. All animals that walk like the cat and the

fox make similar impressions, which give their tracks the appearance of having been made by animals with only two feet; but when they trot or gallop, the footprints are of course different. The track continued across the moor, till I saw that Reynard had sat down, and then struck off at right angles. Strange as it may seem, it was plain to me at the time that he had described a circle, which he had gradually and systematically contracted towards the centre, and had at last made a bound of some eight or ten feet to a dark spot which marked a spring amid the snow-covered ground. Upon making an inspection to discover the secret of what appeared an unintelligible manœuvre, I was surprised to find the feathers of a mallard that had unsuspectingly become the victim of his rapacity and cunning. Yet there were no traces left of Reynard having made a meal of his prey on the spot; and therefore, prompted by curiosity, I followed his track, and found that he had reserved for himself the enjoyment of the feast until he had reached his retreat, a rock in the mountain-side, upwards of two miles from the spot where he had made his successful stalk.

Though the fox depends chiefly on stratagem in catching his prey, I have seen one chasing a hare like a greyhound. He was about a hundred yards behind when I observed them, and gained no ground during the time they were in sight. It by no means follows, however, that the hare would not ultimately succumb to the superior powers of endurance possessed by its enemy.

To "catch a weasel asleep," it has often been said, would defy human ingenuity. What, then, will be said of the detection of Reynard in the enjoyment of an unconscious snooze? Incredible as it may seem, I am not without a well-authenticated case of even a fox with all his wariness being caught napping. A most intelligent and observant keeper on the Atholl estate, Donald Lamont, while going his rounds, was crossing Carn-an-righ, in Fealar Forest, in the solitude of which foxes and birds of prey find a congenial resort. On looking down from an eminence, he observed, at a considerable distance beneath him, a fox lying curled up among the heather. Reynard had taken the precaution, in accordance with natural instinct, to select as his resting-place a spot where he would discover the first approach of danger. He had, however, not taken into calculation that he could be easily discovered by one looking down upon him from the brow of the hill above. The keeper's first impulse was to stalk the "varmint,"

and being an expert at deer-stalking, and having made the habits of game and beasts of prey the study of his life, he felt that this was to be no easy matter. The fox lay comparatively exposed on the hillside without any intervening knolls, and the ground being covered with shivers and small boulders, increased the difficulty of the keeper in getting within shooting distance. Possessing long experience, and that skill which none but an enthusiast in his profession could acquire, the first thing he did was to divest himself of his shoes, that he might avoid making a noise among the stones. Keeping in view the keen sense of smell which is nature's protection for the fox, he placed himself on the leeward side of the animal, and proceeded to carry out his difficult and doubtful undertaking. Having got within about thirty yards of the object of his anxiety, he cocked his gun in silence, and being a first-rate shot, he concluded that the doom of Reynard was sealed. Most ordinary keepers would then have fired without further ceremony, but being a student of natural history, he was anxious to ascertain how near he could approach the fox, with the view of noticing how it would act when it discovered the dangerous proximity in which it was placed to man, the object of its natural dread. Cautiously and stealthily he advanced till within a few yards of the animal, when he discovered, to his surprise, that it was fast asleep, with its eyes closed; and it was not till he was stooping over it, that it awoke by the sound of his breathing. When the eyes of the fox met his, it appeared for the moment actually paralysed. Seizing his opportunity, and quick as lightning, the barrels of the keeper's gun were across the neck of the fox, which he pressed to the ground till it was wellnigh suffocated. He then seized it by the back of the neck with one hand, and getting its body between his bare legs (as he wore the kilt), he was then able to take from his pocket a piece of cord, which he promptly utilised into a muzzle. Reynard being thus utterly discomfited, submitted to be strapped up into the game-bag of the keeper, who carried him home to the shooting-lodge in triumph. This anecdote I believe to be almost unprecedented in the annals of the sportsman or fox-hunter; and were it not that it is authenticated by one whose high character and veracity are unimpeachable, and having seen the fox, I would have hesitated to transfer it to the pages of this volume.

Some time after I was spending a week-end with a friend in a

hunting district in Berwickshire. Taking a saunter after breakfast, I inspected the ruins of Hume Castle. From the elevated position the views of the Merse were magnificent right down to Berwick. Scenery, however, was quickly forgotten as a fox was observed to enter a ploughed field and search about for a place to rest in for the day. Why he was so late afoot is difficult of explanation, unless he had been disturbed elsewhere. He appeared to have some difficulty in getting a resting-place congenial to his taste, as he shifted again and again, but eventually settled down in a furrow. The idea, therefore, immediately struck me that I might try my luck in being upsides with Donald Lamont. Waiting for a considerable time till I thought the fox might be asleep, I started on my somewhat difficult enterprise. I had no intention of capturing him, but, prompted by curiosity, I was anxious to see if I could get near enough to do so if I desired. Approaching by a side wind in order to avoid going straight up the furrow in which he was lying, but taking care to keep sufficiently leeward to avoid him detecting my presence by scent, I stealthily approached him. Walking perfectly upright, I could see his back, the top of his head, and his ears distinctly, but his eyes were beneath the line of vision. If his eyes were closed I felt almost certain that I would get near him, though that I would get sufficiently near to catch him was problematical. When within fifty or sixty yards, I observed that a couple of pewits would be a barrier to my success. They were not exactly in the line, but too near it to allow me to pass without taking wing. Halting for a while in the hope that the birds would move a little or become aware that they were not threatened with danger, I saw with chagrin that they had no intention of leaving, but with their heads up kept eyeing me in a most suspicious manner. Standing motionless, I could not help reflecting on the words of that great observer of nature, who wrote—

“Thou green-crested lapwing, thy screaming forbear.”

Moving a step or two, the birds took wing, but, alas! they did not forbear to scream. “Pewit” seemed scarcely to have emanated from the throat of one of the birds, when in the twinkling of an eye Reynard was galloping up the furrow at race-course speed. I am certain that he never saw me, as he would not have been so scared.



Excellent Sentinels.

Deer, as is well known, are much more frightened when they scent than when they see the danger. Reynard understood by the scream of the birds that he was in proximity to an enemy. His mind must have been made up what to do when he lay down, as he took no time to look round or consider. To me the scream of the bird and the bound of the fox appeared to be simultaneous.

I have—now many years ago—seen a fox lying in a grass field. The hounds had drawn all the covers blank and started for home. Passing within fifty yards of the animal, to make certain it was a fox and not a hare, I pretended not to see it. Had I stopped and looked, doubtless he would have bolted. I ran to the top of the Tweed bank and halloed. A number of people on Norham Bridge halloed also, and in a few minutes the entire field cantered back. Hurriedly telling the master the exact spot where Reynard was lying, I hastened to a point of vantage to see the sport. The fox doubtless saw the approaching horsemen and hounds, but evidently in the hope of being passed unperceived, he lay still till the pack was within five yards of him. This demonstrates that, like deer, the fox is much more frightened by an invisible than by a visible enemy.

In the Highlands of Scotland the destruction of foxes is a necessity in consequence of their depredations amongst both sheep and game. The methods there employed in hunting the fox are of a very different character from those generally followed in England and in the south of Scotland. In the Highlands, in the spring months, farmers, gamekeepers, deer-stalkers, shepherds, and fox-hunters co-operate in order to pit their intelligence and experience against the watchful nature of the object of their pursuit, only too frequently to find, to their chagrin, that they have all been outwitted. No animal in the Highlands of Scotland has more need of the instinct of self-preservation than the fox, as incessant warfare is waged against him by all classes of the community. Eagles and hawks are, in some places, fostered, and encouraged to remain and breed. Deer, game, and salmon are protected in the breeding season with scrupulous care. But during all seasons and in all circumstances foxes are the enemies of every one. Though some proprietors strive to preserve the rarer animals, yet the badger, the wild cat, the marten, and others have become scarce. It is not so with the fox. Despite every expedient which human ingenuity can devise—guns, dogs, traps, and poison—

I could not help reflecting on the great upheaval which must at some far-off time have taken place, and left the mass as it now appears. In close proximity to the cairn were several old trees, gnarled and decayed, the result of the cutting blasts from the wind-swept mountains. Getting nearer, we knew at once by the manner of the dogs that at last we had located the object of our pursuit. The terriers having been kept till we took up our respective positions, they were then encouraged to go in by what seemed the most frequented entrance. Immediately we heard the "music," and shortly after a cub bolted like a rabbit from a ferret, and was quickly rolled over by an ounce of shot. As we stood motionless for over quarter of an hour, and as the yelping of the terriers still continued, it became evident that neither of the old foxes were in the cairn, and that the cubs had taken refuge in some crevice of the rock, where the dogs, on account of their larger size, could not reach them.

"Now then," said Dougal, "here we must remain till the old foxes are destroyed"; and a man was at once sent home for overcoats and provisions, in order that, if necessary, we might be prepared to spend the night on the spot. It should be mentioned that the cairn could not be left, as if the vixen got a chance to steal in she would quickly remove the cubs, possibly many miles away.

Early in the afternoon a messenger arrived with a pony and deer-saddle, on which were strapped coats, rugs, and provisions. Being hungry, we sat down on the lee side of a huge monolith which at some former period had rolled thirty or forty yards downhill. Here we enjoyed a rather romantic luncheon.

The man in charge of the pony was sent home, and the terriers were coupled and sent with him, as they were no longer required. Dougal now took us round and allocated to each one his respective position. The cairn was practically surrounded, and in daylight it would have been impossible for a fox to enter without being within gunshot of one or other of the party. Most keepers of experience know, however, that when darkness appears the vixen, taking advantage of the imperfect light, sometimes steals in and leads the cubs off within a short distance of the keeper, who may be sitting, gun in hand, endeavouring to peer into the darkness. Generally, however, she returns with food for her progeny long before darkness has set in, and though well aware of the presence of an enemy, she, in trying to



W. H. L. 1915

Scheming.

circumvent him, occasionally gets within shot of another gun, with fatal result.

When the sun began to sink in the western sky we took up our respective positions. Dougal and I sat near each other, and I was sheltered from the wind by the mass of rock behind me, and had a fine view to leeward and to the right, while Dougal could guard a gunshot to the left. It was a wearisome wait, but while the sun was disappearing behind the mountains which overshadow Loch Maree I spied a fox, yet a long way off, and coming leisurely in our direction. It turned out to be the vixen, and she was carrying something in her mouth, but even with the glass I could not at the distance make out what it was. What surprised me was that she was coming down wind, the usual habit of the fox being to approach its den up wind. Proceeding onwards, she maintained the space of a quarter of a mile below us, and kept along for a considerable way. She then slanted uphill and turned directly towards us. When about two hundred yards off she laid down what appeared to be a bunch of dried grass and stood looking earnestly in our direction. Though concealed from her view, she seemed as certain of our whereabouts as if we had been standing in front of her. For some time she stood as if undecided how to act, but eventually turned round and round and lay down curled up as if to indulge in a snooze. How long she would have remained in this position it is impossible to say, but as time passed the situation became most tantalising. Surveying the surroundings, I crawled towards Dougal and observed that I thought by creeping a bit uphill, which I could do out of sight, I would get into a hollow and possibly manage to stalk within shot. He shook his head, but said there could be no harm in trying it. Starting accordingly, I had not proceeded far when the vixen got up, and as I crawled onwards she walked a corresponding distance. When I moved she moved, and when I stopped she stopped. Her nose, even so far off, guided her as accurately as her eyes could possibly have done. Seeing I was completely outwitted I remained motionless for a considerable time, and was highly amused to see her lie down, the very embodiment of unconcern, and industriously commence to catch fleas on her back in the same manner as dogs—a process with which we are all familiar. Finding myself thus baffled, I crawled back to Dougal, and the fox returned to her former position. Twilight gradually deepened into darkness, and we were no longer able to distinguish the fox in the

distance. All was now quiet as the grave, and we sat motionless, straining our eyes and holding our cocked guns in readiness should a glimpse of Reynard be observed. In a few minutes we were startled by the loud reports of two shots from one of the guns, and within a second or two after I was aware of something almost invisible passing within a short distance. I could see the flashes in the darkness as Dougal discharged two shots; and bang, bang from my own gun also broke the stillness of the night, though who fired the fatal shot remains a mystery. Suffice it to say that "Tweed" started in pursuit and quickly disappeared in the darkness. Immediately we heard a "worry-worry," and shortly after "Tweed" returned carrying the lifeless body of the vixen.

As it was now too dark to see anything, and as bunches of half-burnt heather and decayed branches of trees had been collected, a fire was soon blazing, around which we sat down to enjoy our supper. Refreshments were distributed and partaken of, songs both in Gaelic and in English were indulged in—even a "hoolichan" was essayed by some; and there, on that wild mountain-side, under cover of night and in the glare of a crackling fire, all these weird features contributed to make up a scene which will not readily be forgotten, and which were not unworthy of a place in the poems of Ossian.

Wearied with the early start in the morning, some of the band were soon sound asleep, as was indicated by heavy breathing and in one case by loud snoring. Though I lay on a bed of heather collected for the purpose, and despite a thick ulster and rug, I shivered with cold, which rendered sleep out of the question. This was ever and again aggravated by the piteous wailing of the dog fox, which during the entire night emitted indescribable sounds. Whatever they meant, to my mind they indicated an amount of parental love for home and offspring seldom excelled, if indeed ever equalled, by higher animals.

With the first streak of light we were again in our positions, and in half an hour afterwards Reynard, who had evidently been in the cairn, was shot dead while making his exit among the guns. Neither he nor the vixen had anything in their stomachs. This fact demonstrated that their domestic anxiety was far stronger than care for themselves. Searching for what the vixen had laid down on the previous night, we were fortunate in finding it. Sure enough it was a wisp of dried grass, but in it were ingeniously held together six young grouse. They were

not much bigger than sparrows, but of different sizes, and must have been taken out of more than one covey.

Proud of our success, we wended our way homeward, hoping that the robbers of the flocks had been destroyed. Alas! this hope was quickly dissipated, as on reaching the keeper's house we were informed that no later than the previous night a messenger was sent to say that a Cheviot wedder and a number of lambs had been found destroyed on another part of the ground. A council of war was at once held, and I gathered that a messenger was to be despatched a distance of twenty miles in order to fetch a fox-hunter with his five hounds. As much of the conversation was in Gaelic, which I did not understand, I left in order to get a wash and some breakfast, after which I tumbled into bed and slept the sleep of fox-hunters and the just.

Awakened in the afternoon for dinner, I ascertained that arrangements had been made to start soon after midnight, in order to be at the summit of a mountain-range and have all the passes guarded by peep of day. A number of shepherds with their collies and the fox-hunter with his hounds were to commence as soon as daylight broke, and beat up the valley where the depredations had most recently taken place. Shortly after midnight six of us with guns started on the warpath. After a long climb we reached the summit, and having descended a short distance down the other side, I was shown my position, but with orders to seek out a suitable hiding-place when it became light enough to see. It was nearing three o'clock, and by-and-by it became a struggle between the sun and moon as to which of them should rule the sky. At last the former gained the supremacy, and in oriental splendour made his appearance above the horizon. Spying with the telescope, I could see that the party had commenced to scour the lower part of the valley three or four miles distant. How slowly they seemed to move! As they came nearer I could distinguish the fox-hounds from the sheep-dogs, and at length saw the former gallop off by themselves, when I concluded they had struck a scent. For fully half an hour nothing could be seen, and, owing to the piercing cold, waiting became most tiresome. At last the pleasant music of hound clamour fell upon my ears, and eventually the dogs came in sight, crossing the corrie at great speed, and evidently in full cry. Again there was a long suspense, as nothing was to be seen or heard, and I fell into a sort of reverie, forgetful for a time of the object of our early ramble. It was a beautiful

morning, and one could not help admiring the rugged grandeur of the mountain-peaks, the glorious expanse of heather in the valley, the twistings of the burn till it joins the Meig, which in turn joins the Conan, the windings of which could be traced till it empties into the Cromarty Firth.

The music of a hound in close proximity caused me to jump to my feet, gun in hand. Fool that I was to be admiring scenery, as it was evident from the hounds running within easy gunshot that the fox had passed unobserved. Anxious to see the chase I followed in pursuit, and saw the hounds in full cry along the ridge. About a mile distant a dome-shaped mountain-peak towered above the ridge, and round this the chase disappeared. Setting the gun against a boulder I drew out the telescope and scanned the hill. What was that? Leaning the glass on the boulder, I saw a fox galloping towards me at a tremendous pace. He had evidently run round the hill, and was coming back on his tracks, doubtless with the view of throwing the hounds off the scent. Crouching behind the boulder, I opened the breech of my gun to make certain that the cartridges were there, and carefully looked to see that it was at "full cock." On Reynard came until he was quite close, when I stepped out from behind the stone. His gaze met mine with a savage glare, but quick as the eye can wink I brought the gun to my shoulder, pressed the trigger, and many a bleating mother was avenged. There was no mistake this time, as on dissecting him it was found that his stomach was gorged with blood and mutton, amongst which was a little wool. It was also found that he had lost part of one of his fore-feet, having at some time or other had it trapped off, which circumstance no doubt accounted for his extreme wariness. The only pad any of the keepers in the district could remember having been found in a trap was two years before at a spring on the mountain-side sloping towards the river Meig. While angling on that river the head stalker had killed a trout three pounds in weight. On cleaning it he discovered a fox pad in its stomach. Whether the pad found in the stomach of this trout was the same as that left in the trap, and belonged to the fox that had just been shot, will never, of course, be known. It is to my mind, however, within the bounds of possibility, that when the keeper reset the trap at the spring, he would throw down the pad, which after a heavy rain might get washed down a burn to the river, and thus find its way into the stomach of the trout. However one may try to account for it, to find the pad of

a fox in the stomach of a trout was certainly somewhat curious and unexpected.

Fox-hunting as described cannot be regarded as child's-play. So long as the weather is genial, to those who can admire nature amid wild mountain scenery in the early morning, few things are more enjoyable. It is otherwise when caught in heavy rain, with a cold cutting wind, and burns unfordable, except by plunging through, in foaming torrents down the mountain-sides. To remain out all night in such circumstances will be more easily imagined than described. At other times, when large tracts of mountainous districts have to be traversed, it is exceedingly hard and tiresome work. Some years ago when spending a week-end at Blair Atholl, I learned that the late Sergeant Macbeth, the Duke's head stalker, had arranged a fox-hunt on Ben-y-Gloe the following Monday morning, parties having to start long before daylight. The fiery-cross had not gone the rounds to gather the clansmen together for many a long, long day, but the sergeant had ways and means of his own of having this accomplished. The consequence was that over a wide area of country, all the sheep farmers, gamekeepers, shepherds, and farm-servants combined for a great fox-hunt round the mighty Ben.

Calling on the sergeant, I got all the particulars as to the carrying out of the proposed programme, and at once made up my mind to take part in the fox-hunt. Learning that the Forest Lodge and Fealar keepers were to conceal themselves in passes between Loch Loch and the summit of the mountain, I made up my mind to join them rather than traverse the rugged corries round the Ben. I therefore walked on to Fealar, a distance of seventeen miles, where I spent the night with the keeper, Donald Lamont. Four o'clock being the hour we had to be at our appointed places, and having an hour's walking before reaching them, we went early to bed. I seemed scarcely to have been asleep, when I was awakened by the stentorious voice of Donald Lamont crying out that it was time to be off. I jumped up, dressed quickly, and getting a gun and some cartridges, started with the two keepers for Loch Loch immediately after daybreak. Walking down the path we observed what few naturalists have witnessed, three packs of blackcocks simultaneously engaged in battle. Each of the lots were assembled on grassy flats about three-quarters of a mile apart. The largest pack, though only a few hundred yards distant, took no notice of us; and after crossing the Glenmore Burn and ascending the opposite bank, I sat

down and with the aid of the telescope watched with interest the manœuvres of those charming birds. In the still morning we could distinctly hear their loud and resonant notes. About twenty cocks had assembled, but I was unable to see any hens.

It would have been interesting to have seen the result of their manœuvres, but Donald remarked that it was time to be off, so again we started uphill for Loch Loch. On reaching the ridge we descried below us sixty or seventy deer quietly browsing, but quickly winding us, they scampered off. Descending a steep hill we reached the loch, beautiful and grand in its wild solitude. Walking a short distance up the face of Ben-y-Gloe, we took up our respective positions on the most likely passes Reynard would take when disturbed by the line of beaters. Unfortunately, the wind was from the north, which was unfavourable for the successful carrying out of the programme, as, long before he was within gunshot the fox would scent danger ahead and sneak through one of the unguarded gullies. Strange as it may seem, unlike deer, foxes frequently run down wind when disturbed.

At the appointed hour a start was made, and the arrangement was to beat the east side of the mountain from the south towards the north. The nature of the ground would not admit of great speed, as the beaters had to descend into one corrie, then ascend the steep face on the other side and cross the ridge, only to get into another corrie. Ben-y-Gloe is estimated to be about thirty miles in circumference at its base, and contains twenty-four corries, many of them wild and rugged in their character.

The band of men and dogs sped through gullies and over ridges till they reached Coire-na-Chestachan, which is well known to be a favourite haunt of foxes. Pursuing their course among rocky boulders, one of the beaters caught a glimpse of a large fox making off in the distance, though not in the desired direction.

While the beaters were toiling through the rugged corries, those of us on the passes, miles ahead, had our attention attracted by a couple of foxes near a cairn far up the side of Ben-y-Gloe. It was evident that their cubs were not far off, and I was much interested in their manœuvres. Though quite half a mile distant, I saw them distinctly through the telescope. One of the guns stationed on a high pass attempted to creep within shot, and it was highly amusing to watch him going through all the tortuous windings of the stalk in his endeavours

to keep out of sight. Circling about in playful gambols, one of the foxes got almost to the leeward of the stalker, and in an instant sniffed the tainted air. For about a second he gazed in the direction, but though nothing was to be seen, he made certain of his whereabouts, gave a low bark as a signal to its mate, and in an instant both scampered downhill, one of them going into the ground within the sweep of the beaters and the other, unfortunately, outside the circle. Observing several pairs of ptarmigan flying along the ridge, we concluded they had been disturbed; and at last the line of beaters was seen coming forward and entering the nearest corrie.

As the fox was not seen to break out, it was surmised he had concealed himself among some rocky boulders, and a search was made accordingly. This proved to be correct, for up he jumped and galloped off at a tremendous pace, passing within a hundred yards of a number of guns. From my place of concealment far below I could see flashes and the puffs of smoke from the muzzles, and could hear the rattle of the musketry reverberating among the mountains. The fox came galloping straight in my direction, hotly pursued by a motley group of dogs. A big lurcher, used for wounded deer, belonging to Willie Macara, one of the keepers, soon distanced the others in the chase. Lying flat, with my gun at full cock, I discovered that Reynard would not get my length, though within three hundred yards. The lurcher referred to was close on his heels, so feeling escape impossible, he wheeled round and faced the howling pack. In a second he was surrounded and seized by a dozen dogs, but, game to the end, his jaws were in use till the last spark of life was extinguished. Several of the dogs were wounded in the fray, and the lurcher ran lame the remainder of the day through a severe bite on the fore-leg. It was discovered that several pellets of shot had struck the fox, which doubtless accounted for his being so easily run down.

Attention was now turned to the cairn where the foxes were first seen, and it at once became apparent that a litter of cubs was inside. Terriers were put in and the whereabouts of the cubs discovered by their "music," and by the displacing of a few stones half a dozen nicely furred cubs were discovered. They were huddled together and were just out of reach of the terriers, whose larger size prevented them from getting behind the rocks. The cubs were immediately transferred to game-bags and subsequently sent to England, to afford sport in fox-

hunting of a different character from that in which we were engaged.

A halt was made for half an hour, to allow the men to rest their wearied limbs, and then it was arranged to beat back the corries on the west side of the mountain. A number of guns were sent forward to guard the passes out of them. Getting into marching order, we soon reached Cor-a-Chaistail, which was the likeliest corrie for a fox on that side of the Ben. We were scarcely into it when the cry of "Fox to the right" was distinctly heard. I never got my eyes on him, but a single shot on the ridge sealed his fate. It was subsequently ascertained to be a dog fox, minus two toes of one of his fore-paws, which no doubt had been left in a trap, perhaps years before.

We had not proceeded more than three hundred yards when a cry was again raised, and the advance gun on the ridge was just forward in time to get a "right and left" at a fox; but he kept on, evidently little the worse. Some fleet collies were soon after him, their loud yelping inviting others to join in the chase. The fox, being only slightly wounded, ran a long distance before being captured, and, unfortunately, the chase was witnessed only by the two highest guns. It turned out also to be a dog fox, and it was presumed that they were widowers, whose dams and cubs having been destroyed, had sought for safety in the solitudes of Ben-y-Gloe.

Great were the rejoicings among the sheep farmers when it became known that three old foxes had been destroyed, as they felt that destruction among their lambs would be discontinued.

THE OTTER.—The pursuit of wild animals as an amusement has engaged the attention of man for ages, and it is to be hoped that, despite the writings of pseudo-humanitarians, this, our national sport, will remain for ages to come. The love of the chase is inherent in the nature of most men, being handed down from the earliest times. Every one is familiar with the frequent allusions in the Bible to gins, traps, nets, nooses, snares, &c. Doubtless it was, in order to procure their skins for raiment and their flesh for food that animals were first hunted by man. I noticed when on a sporting tour in the north of Norway and visiting a Lapp encampment, that the staple food of the Lapps was all got from reindeer—flesh, blood, milk, and cheese. Most of the other necessities of life—and even death—are derived from the same

source. Their clothes, their beds, their blankets, their cradles, and their coffins, are all made of deer-skins.

Pitfalls and other crude methods were in olden times employed to compass the destruction of wild animals; and if we may judge by old prints of how animals were speared to death in pits, the cruelty must have been great. Modern methods are more humane, and votaries of the chase are stimulated to mingle mercy with their sporting practices. Keeping the good old maxim in view, of the greatest good



Otter resting on Rock.

to the greatest number, it is interesting to reflect whether the life of an otter is the happier in a hunting or a non-hunting locality. Most animals instinctively prey upon each other, but the otter has no enemies but man. He must, however, be classified as a poacher. He used to be regarded as purely a river poacher, confining his depredations to the finny tribe. Like those professional netters whose midnight incursions are destroying the prospects of the angler in many of our Scottish rivers, the otter succeeds in robbing the river of its

largest trout when salmon are not available. It is a mistake, however, to conclude that his poaching propensities are exercised only in the destruction of fish, as this does not comport with my experience gained from observing their habits. If notice be taken of places they frequent on the banks of rivers, fur will be frequently found among their droppings, thus demonstrating beyond doubt that more than fish is included in their bill of fare.

I have taken part in otter hunts in mountainous districts where my only interest was to secure their skins. In such places as Dalnaspidal, in Perthshire, after a fall of snow, I have followed the spoor of otters by the sides of mountain streams, and occasionally succeeded in tracking them to a cairn or burrow, where by the aid of terriers they were bolted and rolled over with an ounce of shot. In such circumstances I always felt I had taken a shabby advantage by following the trail where

“Faithless snaws ilk step betray
Where she hath been.”

At the same time a splendid object-lesson in nature may thus be obtained. Impressions of the otter's footprints in the snow are easily read, as in a book, and many traits in their habits, unobserved at other times, can then be accurately noted. The habits of the otter are not definitely known, and I have never been able to ascertain with any degree of certainty when they bring forth their young, and at what age they commence to breed. I have observed female otters killed at mid-summer with no traces of having been nursing, and young otters vary much in size, indicating that their breeding habits are not invariably in accordance with other animals, such as the fox or badger.

The otter is very largely gifted by nature with scenting powers, and I have noticed when skinning the nose that that organ was permeated by a perfect network of nerves. That he can scent and pounce upon his prey like a fox was demonstrated by following his tracks among snow up Corrie Macshee Burn at Dalnaspidal. The trail left the water-side, and showed where the animal had made a bound and caught a grouse in its roosting-place among the snow. Returning to the stream, he had crossed on to a boulder in the centre of the burn, where he devoured part of his prey. He had evidently not been hungry, as he had eaten only a small part of the breast. Otters

have also been tracked over the high mountain-range which constitutes the watershed between the counties of Perthshire and Inverness-shire. They have evidently been making a bee-line for Loch Ericht.

Where otters are protected for hunting, their lives must be happy as contrasted with life in those places where traps are continually set for their destruction. The skin is a valuable fur, and much sought after, and it would be interesting to learn if any of our humanitarian sentimentalists ever consider, when they see their lady friends adorned with furs, how much cruelty has been perpetrated to attain them. A more cruel instrument of torture than the iron trap it is difficult to conceive. I well remember trapping my first otter. It was on the estate of Simprin, in Berwickshire, several miles from a river. Traps were set along a double hedgerow in burrows frequented by rabbits. For several consecutive mornings I was chagrined to discover that rabbits had been dragged out of the traps and no traces of them left. I was at my wits' end to discover the depredator, but finding a suitable place at the root of the hedge, I made an artificial hole in which I placed a strong trap, using a rabbit split up as a bait, carefully covering the trap with soil, and with a branch drenching it with water from the ditch in order to take away the scent of my hands. The following morning I proceeded to look the traps, and was carrying a hedge-knife in order to cut the thorns around the burrows. On approaching the baited trap I was surprised to find a large otter secured, all the more so as at that time I was under the impression that otters never travelled far from water. Knowing that the skin was valuable, I quickly made up my mind to have him killed. Not seeing any suitable stick, and having the hedge-knife in my hand, I went forward to strike him on the head with the back of it. It was my first experience with an otter, and his agility surprised me. I had of course to be careful to keep outside of his range, otherwise I might have been severely bitten. For a time I tried in vain to strike him on the back of the head, but, quick as the blow came down, he caught the knife with his teeth, and was bleeding copiously from the mouth before I got him despatched. The trap held him securely, but from the appearance of the ground with his struggling he had evidently fought determinedly to escape, and the pain he had suffered must have been excruciating.

An illustration of the destructive habits of the otter recently came



Not always a Fish-eater.

under my notice. When rearing pheasants on the Biel estate in East Lothian, near the runnel which constitutes the overflow of Presmeunan Loch, the shifting spar of a coop had been displaced by some animal and the foster-mother dragged out and partly devoured, its remains being left a few yards from the coop. A number of young pheasants—by this time sitting out among the grass—shared a similar fate. Traps were immediately set, baited with the dead bodies of the birds, when a huge otter was secured and the massacre ceased.

A small island in the Tweed, covered with willows, immediately under the rocky eminence and ruin of Norham Castle, used to be a favourite haunt of otters. I have seen there a dozen of his victims—heavy salmon, with a small bit eaten out behind the head; and so I have arrived at the conclusion that the destruction to fish life by otters must be great. Searching round the island, I found the tracks on the sand where one had emerged from the water. Placing a trap carefully covered on the spot, it was evident on the following morning that an otter had been caught, but that he had managed to drag his foot out and escape. Being anxious that this should not happen again, I planted four traps a short distance from each other, in order that if caught in one, the otter in struggling to escape would get secured in another. For a fortnight thereafter I do not believe a single otter landed on the island, as I rowed round it in a boat, but could see no traces of the varmint. Here I discovered the sagacity of these animals, as it became apparent they communicated to each other that this lonely island in the centre of the river was a place to be avoided. Weeks passed, and being engaged on another part of the estate, I could only visit the traps in the evening. At last I was rewarded by securing a fine otter; but as he was caught “fore and aft,” and remained in the traps all day under a broiling sun, the cruelty perpetrated haunts me still. Acquiring experience, I subsequently learned to place traps in the water where otters land, and to have a long chain attached to a stone, in order that the animal may quickly drown himself. At that time otters were a source of annoyance to the net fishermen by swimming the pool after dark, when the “wares” resembled those of a large salmon ascending. “Shot” after “shot” was rowed, and though the net encircled the supposed salmon it was as a rule brought in empty, the otter cutting the net and escaping. As I sat beside the fishermen one autumn night at the sheiling opposite

the village of Norham, we distinctly saw what we supposed to be a twenty-pounder ascending the ford. Giving the halloa, the boat went across the stream, down the other side, and was quickly rowed back, when we supposed it was impossible that the salmon could escape. On dragging the net near the shore, an otter was discovered in the "bosom," where the smaller mesh had completely muzzled him. When brought to the side, heavy portions of the wet net were thrown over him, and two excited fishermen, each seizing a net staff, belaboured him till I verily believe every bone in his body was broken.

In places where otters enter drains under water it is easier to trap them, as they instinctively do not suspect danger in the liquid element. It must be apparent, however, to the most superficial observer that this mode of catching otters is cruel in the extreme, and I shall now endeavour to contrast his life in a hunting district where he is protected even by the "ruthless gamekeeper." He there acts the part of a licensed freebooter, feasting on the trout in preserved waters and in lochs artificially stocked. Yet no man's hand is against him till a meet of the hounds is arranged. As otter-hunts have so often been described, it would be superfluous here to recapitulate. Suffice it to say that the otter is not always killed, as was recently described by a correspondent of a local journal in a hunting district. After referring to unsuccessful hunts, he says, "However, on the thirteenth day's hunting, the luck turned." After this a good run is recorded, and the otter escaped. The number of days' hunting for every otter killed is therefore surprising, but excellent sport may be obtained without the animal paying the penalty with his life.

A certain class of humanitarians have classified otter-hunting with bull-baiting, bear-baiting, cock-fighting, and badger-drawing. These animals are either domesticated animals or captured ones kept in confinement, frequently in anomalous conditions. To torture them, therefore, with dogs is a species of brutality which cannot be too severely denounced. With otter-hunting it is vastly otherwise, as much of the pleasure is derived in watching the skill and sagacity of the hound, which, by the power of its olfactory organs, can track an otter hours after it has passed to its hiding-place for the day. That the scent is diffused over a wide area must be manifest. Otter-hounds are largely endowed with the power of scenting, as, unlike the fox, the object of

its pursuit travels partly in water and partly on land, thus rendering adherence to the trail much more difficult.

In otter-hunting great enjoyment is compassed by all at a minimum of animal suffering, and, as I have shown, much less than where no pack is kept. Where hunting is condemned, as is done by some would-be authorities, it is the clearest possible indication that they write in ignorance of their subject. No one who has had experience of hunting would ever attempt to write it down. One of the features of the chase is the enjoyment which pervades the community who take part in it. Even agricultural labourers, men and women alike, leave their work and run to enjoy the chase. In a recent description of an otter-hunt the writer stated that "the women from the cottages shouted, the children squealed, and every passer-by crowded the thoroughfare."

As I have shown, the otter preys on fish, flesh, and fowl, and sooner or later his day of atonement must come. When caught and worried by the pack, his struggles are of short duration. That a minimum of cruelty exists it would be idle to attempt to deny; but in what is cruelty not evinced? Take angling, recognised as the "gentle art," and you will find it there. Nay, more, the methods are deceitful, the wiles of the angler being to cheat his finny prey with "sham flies." In his defence of angling from cruelty, the late Mr Russel of the 'Scotsman' characterised it as "a maudlin heresy born of ignorance and affectation." He went on to ask "on what his sentimental critic had been dining? Possibly on a joint of lamb. The lamb, recognised as the emblem of innocence, gambolling on the mountain-side, harmlessly and helplessly cropping the flowery mead, hunted by dogs, writhing in the shambles, seized by a coarse greasy butcher, who, with unkind clutches in its fleece, ties its feet with cruel cords, dashes it roughly on a stool, and thrusts a jagged knife into its innocent throat!"

The otter is not so scarce as many believe, being found in the immediate environs of Edinburgh, and has even been seen within the municipal boundaries. It is so strictly nocturnal in its habits that few people ever see one, even where otters are plentiful. Otters frequented the Braid Burn, which encircles the southern boundary of Edinburgh. While duck-shooting one moonlight night with a friend, our attention was attracted by a dark animal on the snow near a ditch a short distance from the brook. Directing the retriever's attention to it, we were at once "full cry" on an otter-hunt. The dog seized the

otter, which quickly gave him a severe bite, when he let go, and a running fight took place. Every time the dog closed with his adversary he received a bite, and jumped back, so that the varmint each time gained ground. Getting up with our guns, we could have shot the otter, but dared not do so for fear of killing the dog. The running fight continued for a time, when, to our chagrin, the otter disappeared in a drain. Leaving my friend to watch, I ran home for a trap, which was skilfully set in the mouth of the drain, then covered with earth, and with a branch drenched with water to take away the smell of our hands. Visiting the place early in the morning, sure enough the otter had been caught, but, being only a rabbit-trap, the spring was not sufficiently strong, and he had managed to drag out his foot and escape.

While family worship was being conducted in the drawing-room of Niddrie House one Sunday evening, a sporting butler witnessed from the window a female otter and cubs wending their way up the side of the brook. Scarcely was "Amen" pronounced when he bolted downstairs, seized a poker, and started on an otter-hunt. Unfortunately he killed two of the cubs, but the others, with their mother, escaped. Otters frequent the Esk at Dalkeith, and farther up in the policies of Melville Castle. I once had the pleasure of seeing one in the pool immediately below the iron bridge near the Castle. Seeing him from a distance I stalked round, and, the bank concealing me, I approached to within a dozen feet of him. Directly he discovered danger he plunged into the river and dived to the bottom, his long tail being clear out of the water as his head went downwards. As the water was clear, I distinctly saw him swimming up the pool, and what surprised me was that he scarcely made a ripple on the surface. Landing on the other side near the bridge, he quickly disappeared among some rhododendrons. Several times otters were caught in traps there, but were invariably let off in order that they might afford sport by hunting.

THE CAT.—Another animal most destructive to game is the cat. Since game preservation has been carried on to such an extent, the wild cat in many parts of the country has been almost extirpated. It is not, however, by any means extinct, despite assertions to the contrary, and in those vast wildernesses now afforested there is no reason why it should not increase. Strictly nocturnal in its habits, few people ever have an

opportunity of seeing one, and consequently many have arrived at the conclusion that because they or their friends have never observed wild cats, therefore they are extinct. Articles again and again appear in our journals affirming that the wild cat may be classed with the dodo and the great auk, and that those caught from time to time are only the tame species which have assumed a feral life or are adulterated by a greater or less strain of the domestic species. More erroneous theories were never promulgated, and I affirm that *Felis catus* is still to be found in Scotland as pure as it was before game preservation was ever thought of. It is a simple matter to write, as many do, in high-sounding phrases about the ignorance of keepers in killing out the rarer of the fauna of our country; but it is another and a very different thing to dispose of facts established by evidence of the greatest living authority. I have seen many wild cats nailed to the vermin-boards of keepers, but only once have I seen what I thought to be a cross between *Felis catus* and *Felis domestica*. It was nearly as large as any wild cat; but besides the taper of the tail there were other characteristics which proved a strain of the tame species. Many striped grey cats of large size have come under my observation, but there was no more difficulty in deciding that they belonged to the domestic breed than if they had been tortoiseshell-coloured tabbies. On the other hand, members of the wild species are quite as easily recognised. Characteristics such as their uniformity in colour; the dense tail without taper, black at the end and ringed alternately with black and grey; the beautiful, long, soft fur, warmed with russet inside the flanks; the large size, the strong muscles, the broad skull, the formidable teeth and claws, and the round cream coloured spot on the breast, varying in size from a shilling to a florin—all these mark them as representatives of the true species of *Felis catus*. Their cry also is different from that of the domestic cat. I can remember many years ago sitting all night at a cairn in which was a fox den, waiting for the first streak of daylight in order to try and shoot the old foxes at Crag-an-graghag, opposite Corrie Charaby, in Glen Orrin in Ross-shire. Never can I forget the cries of a pair of wild cats, somewhat resembling those indescribable noises that in town render night hideous to human beings, but of a much louder and deeper tone. The wild, weird, unearthly cries as they answered each other in the quiet of the night, echoing from the opposite side of the glen, almost filled me with a feeling of awe. The fearful stillness of the night on that

wild mountain-side and the unearthly cries seemed to speak of some impending doom—something intangible, indescribable, uncanny. It would be difficult to conceive any sound more discordant, or that grates more harshly on the ear than the cry of a wild cat.

Some years ago a keeper of my acquaintance secured a situation at Kingairloch, a mountainous district in the north of Argyllshire. During the time he has been there he has never seen a wild cat in its native solitude, nor, except for his traps set for foxes, would he be aware that there is a wild cat on the ground under his charge. The fact remains, however, that dozens, lacking the proverbial cunning of the fox, blundered into the traps. At a meeting of the Edinburgh Field Naturalists' Society, after a dozen of the wild cats trapped by the keeper referred to had been exhibited, a report of it got into the newspapers, and as the result a lively discussion, continuing for some months, took place. One correspondent, copying from Dr Edward Hamilton's book, stated that Egyptian cats were brought into this country about 500 B.C., and crossed with *Felis catus*, evolving a breed which was classified by Linnæus as *Felis catus ferus*. With all due respect for Dr Edward Hamilton's opinions and for the classification of the great Swedish naturalist, I affirm that *Felis catus* exists in Scotland as pure now as in the days when Egyptian cats were first introduced. Crosses, as has been said, can be distinguished at once. If *Felis catus* crossed with *Felis domestica* 2000 years ago, it is not too much to affirm that they would have continued crossing, with the result that the characteristics of the wild species would long since have disappeared. Sir Herbert Maxwell says, "The true wild cat is increasing in Knoydart." Why shouldn't it? In such districts as Glenstrathfarer and those remote wildernesses where for miles the hillsides are engirded with natural wood and scrub, the wild cat finds a congenial home. Few, if any, of our landed proprietors wish the extermination of the rarer fauna of our country. As is well known, however, foxes hold their own against all the expedients which human ingenuity can devise, and their destruction in the Highlands is a necessity in the interests of sheep farming. That wild cats blunder into the traps is unfortunate. The most lonely and inaccessible mountain cairns constitute their haunts, and, as a consequence, they are seldom seen during the day.

Ben Slioch in Ross-shire has long been a favourite haunt of wild cats. On a visit to Letterewe on the north side of Loch Maree I was



The Wild Cat.

interested to note a number of wild cats that were caught in traps set at the mouth of rabbit-burrows. This proves that the instincts of the wild and domestic species are similar, as cats sitting watching at rat and rabbit holes is a common practice familiar to every one.

I asked the keeper at Letterewe if he could secure a very large Tom, as I would be glad to have it; and shortly afterwards a box arrived in Edinburgh containing a large living cat. I wanted to have him stuffed, and some difficulty arose as to how he was to be destroyed. Had I been at home I could have let him out and shot him, or submerged the box in the burn, but in town it was a different matter. Necessity, however, quickens invention. I stopped up every crevice in the box, and with the aid of a piece of rubber-tubing attached to a gas-pipe and inserted into the box, I turned on the gas, which quickly asphyxiated him. He was a very large specimen, but unfortunately had begun to cast his fur.

Sir Herbert Maxwell's statement that the wild cat is far from being extinct is not a rash assertion. Securing a number from the west of Inverness-shire, he sent them to the greatest living authority, Dr Oldfield Thomas, Director of the Natural History Department of the British Museum, who pronounced them "indistinguishable from pure *Felis catus*." In face of such an authority, what is to be gained by continuous assertions that the wild cat is extinct? Surely it would be better to act as Sir Herbert has so sensibly done, and investigate the matter, instead of indulging in self-assertion in an atmosphere of uncertainty.

The length of the entrails is asserted to be a test of the genuineness of the wild species, these being much shorter than in the domestic breed. This may be regarded as a dangerous test. We have no evidence to prove that a domestic cat which takes to a feral life in the woods will beget progeny differing in the length of entrails from *Felis catus*.

Recently a paragraph appeared in the 'Oban Times,' stating that considerable destruction among poultry had taken place at a farm in Lochaber. Foxes were blamed, and a gamekeeper was consulted in the matter. Setting a number of traps for the depredator, he was rewarded the following morning by securing a very large specimen of the wild cat. A few days later a paragraph appeared in the 'Scotsman' asserting that for some years back the ravages wrought by wild cats in the district of Lochaber and eastern Argyllshire had become annually more pronounced

notwithstanding the *ipse dixit* of certain naturalists that the species is on the verge of extinction in the Highlands. A shepherd on the estate of Ardgour had his attention attracted to his hen-run by a commotion among the fowls, and with the aid of his dogs he managed to destroy the cat. It was a large, finely-marked animal, measuring three feet two inches from snout to tip of tail. Ten hens and two ducks lay dead, and several others afterwards succumbed to the injuries they had received.

In Kingussie, that fruitful nursery of rare notabilities in natural history, a pair of wild cats may be seen in captivity on the premises of Mr Macfarlane, the well-known sporran manufacturer. As that gentleman takes a pride in exhibiting them to any naturalists, those who are sceptical as to *Felis catus* still existing in Scotland might do worse than pay a visit to inspect the cats in question at Kingussie. A year or two ago they effected their escape, and it was found the following morning that the hen-run had been invaded and twenty-seven hens, two turkeys, five ducks, and two pigeons destroyed. By the aid of traps they were again secured. One of them, however, is now minus a foot. Though they are male and female, they have never bred in confinement.

The invasion of poultry-houses by the wild cat is not a new trait of that marauder. "When driven from the higher altitudes by the rigour of the weather, one of these animals sometimes takes up its residence at no great distance from a dwelling, and, entering the hen-houses or out-buildings, carries off fowls in the most audacious manner." So records Charles St John in his charming book, 'Wild Sports in the Highlands,' published about seventy years ago.

Felis catus is still far from being extinct among the mountains north of Loch Ness. A pair were sent from Balmacaan to the London Zoological Gardens, and another pair to the Zoo in Edinburgh a few years ago. It is said that wild cats are untamable, and this I fully believe. Mr Cameron, the head keeper at Balmacaan, has a number in cages, and one which was caught as a kitten, though now full-grown, is as fierce as if it had never seen a man before. It puts back its ears, and growls and "spits" whenever any one chances to gaze through the bars of its cage. One full-grown specimen which was recently captured has made desperate attempts to escape, all the wood-work of its cage, roof included, bearing marks of its teeth and claws. I must confess my ignorance of the longevity of cats, even of the domestic species. Mr

Cameron had a wild cat which died after being seventeen years in a cage. It would, however, be a mistake to advance any theory upon experiments when dissociating wild creatures from their natural environments and placing them in captivity.

Wild cats, like foxes, produce their young in rocky cairns, or burrows like rabbits. The old ones do not stay long beside their young, presumably because the kittens would torment them too much to be suckled. On one occasion a pair were confined in one of the cages, and the female produced five kittens. Mr Cameron congratulated himself on the success of the experiment. Unfortunately they were all left together, and when the kittens were two months old the mother killed them all. We hear a great deal about crosses with the domestic species, which Linnæus characterised as *Felis catus ferus*. Whether they ever cross or not is a moot point. Mr Cameron was anxious to ascertain this, and introduced a domestic tabby beside a large Tom. In a couple of minutes the savage animal had the poor tabby killed, so that the experiment was futile. As will, however, be understood, this proves nothing, as he might have acted differently in his natural state.

When bred in a mountain cairn or burrow, cats bolt from a ferret like rabbits, and are thus easily shot. I have frequently shot domestic cats which have taken to a wild life in the woods, when bolting from a ferret. In the burrow where Mr Cameron recently dug out the kittens he found twenty-seven rabbits, most of them partly eaten, but a good many untouched. This demonstrates that wild cats cater well for their young.

Even a greater pest to the game-preserve in the low country is the domestic cat. They are continually being reared by farmers and cottagers; and as numbers of them give up hunting rats and mice, for which they are kept, and take to the woods for game and rabbits, it is easy to see how, in game-preserves, this animal demands the vigilance of the keeper. The destruction of cats by gamekeepers is a continual source of discord between him and his neighbours. But when they take to hunting for game and rabbits, they are useless for domestic purposes; and the amount of game killed by one cat is very great, as they at times go a long distance in search of prey. Having once had a cat in my possession which took to hunting in the woods, I was curious to see what she brought home. Young hares and rabbits were its principal victims, but young pheasants, partridges, corncrakes, pigeons, water-

hens, and once a young unfledged mallard, which must have been carried a long distance, were the result of her rambles. When I was trapping rabbits in a hedgerow over a mile from home, she was found secured in one of the traps. An old retriever, which always went first and made a sort of point when a rabbit was in a trap (a great assistance in the dark), at once recognised a domestic acquaintance with whom the dog was on the most friendly terms. Instead of rushing in and worrying her, as was the habit with other cats, the dog sat down and howled in a most melancholy strain, no doubt interceding in canine fashion for puss to be released; and on the spring being pressed down, thus allowing her to escape, she limped away, much to the apparent satisfaction of the dog. Her leg, however, being much damaged, I was glad of an excuse to get rid of her. Cats have little cunning, and are easily caught with traps baited with a bit of rabbit, or indeed any kind of flesh or fish. If there be a footpath or walk through the wood, cats will generally travel on it, and are easily attracted by a bait near it. A more humane method than the iron trap is a wooden box-trap, with a little valerian root sprinkled in it, which, from the odour it emits, will be sufficient to attract any cats that may be in the locality without recourse being had to any other bait. As unnecessary cruelty to any animal is to be deprecated, might I suggest another humane trap with which I have killed hundreds of cats, stoats, weasels, rats, hedgehogs, and occasionally a magpie? Get a stone flag—Caithness ones suit admirably—about three feet square, and, with the three sticks commonly called the figure 4, prop up the stone with a bit of rabbit tied at the end of the horizontal stick, and, directly the bait is touched, down comes the stone, and whatever is below it is crushed to death.

Once when sitting in an extemporised hiding-place made with branches with the view of trying to shoot a sparrow-hawk returning to her nest, I had a splendid opportunity of observing an interesting stalk by a cat in its endeavours to capture a rabbit. My attention was attracted by bunny hopping about in the wood; there was nothing unusual about this to make it worthy of record, yet its movements were not without interest. It was up-wind, and could have no suspicion of my presence, but its eyes had a scared appearance, and its pricked ears gave unmistakable evidence that it was apprehensive of danger. What could it mean? Suddenly bunny gave a few bounds and stopped within ten or twelve feet of where I sat. Its sides were

heaving violently, and its ears turned in every direction as if to catch the slightest sound. There was a footpath through the wood, and glancing along, a huge cat, evidently disappointed at bunny's movements, crept cautiously out from a privet bush and came crouching on as if in pursuit. It was a large tiger-striped Tom, and but for his tapered tail might easily have been mistaken for a true specimen of *Felis catus*.



One of the worst Poachers.

The stalk was now intensely interesting, and I silently awaited the result. Neither pursuer nor pursued gave the slightest indication that it detected my presence, being sufficiently engaged in watching each other. Puss left the walk for the grass, and crawled almost serpent-like towards the object of his pursuit. When it got within nine or ten feet I trembled for the fate of bunny. Puss had evidently made up his mind that it could not get nearer, and, with the exception of his tail, which moved slowly from side to side, he remained motionless.

Almost afraid to breathe, I was waiting further development of the manœuvres, when, quick as the eye can wink, puss made a bound, doubtless expecting to dig his claws into the soft fur of his victim. Bunny, however, was too wide-awake, as, when puss made the spring, it also bounded simultaneously and escaped. Here we discover how wisely and mercifully nature has implanted the instinct of self-preservation within the breast of a rabbit, as, knowing the danger of subtle approaches in the cover, it scampered out fully thirty yards and squatted in the bare and open field. Puss, thoroughly discomfited, stood and watched it, but evidently made up its mind there was no chance of success, so trotted off along the footpath to "pastures new" in search of supper. It was an object-lesson in natural history. When a man or a dog is the enemy in pursuit, how quickly bunny bolts to cover; but when, as has been seen, a cat is in waiting, it knows that safety can more easily be found in a bare and open field.

The HEDGEHOG is another species of vermin hateful to the keeper, and most destructive during the hatching season. The destructive habits of this animal are but very partially known. This, we believe, is to be accounted for by people being ignorant of the activity which this animal can display. Many people think, when they see the hedgehog curled up and quietly submitting to be kicked about, that it is naturally dormant and sluggish in its habits. Did those persons only chance to look out from some concealed strip of plantation on a grass meadow some starry night or after a warm shower about dusk, they would soon discover how deceitful are appearances. They might then see the hedgehog running about with the activity of a rabbit, nose on the ground, looking for its prey with all the instincts of a weasel. I have on different occasions stealthily approached within a few yards of the hedgehog and watched it grubbing among the roots of the grass for beetles. It is generally late in the evening before they venture out, and except during the longest days in summer they are very nocturnal in their habits, so that it is exceedingly difficult to arrive at an accurate conclusion from observation as to what constitutes their food. I have frequently dissected them and examined the contents of their stomachs, and was forced to the conclusion that beetles constitute a considerable part of their food supplies. The hedgehog is classed among the Insectivora, and, as far as my experience goes, correctly so—though, as is well

known, it is passionately fond of flesh and eggs, both of which are used to lure it to its doom by the game-preserve. Except perhaps a blade of grass swallowed along with a beetle, I have never found anything of a vegetable nature in their stomachs.

Some assert that the flesh of hedgehogs is very good to eat, and it is regarded as a dainty by gipsies. The recipe for its cooking is of some antiquity, being handed down by oral tradition from sire to son. The method, it is asserted, was to encase them in a ball of clay and roast them among the hot ashes of a wood fire. When cooked the skin and bristles come off with the clay, leaving the flesh ready for consumption. Others assert that "their flesh is not good for food." Never having tried it, I am not prepared to hazard an opinion. This, however, I will venture to say, that the smell of hedgehogs may in some way be akin to the scent of game, as I have seen pointers and setters stand as staunch as if a covey of grouse or partridges had been a few yards from their nose.

The depredations of the hedgehog against the game-preserve are chiefly confined to nest-harrying. The amount of mischief done in this direction is simply incalculable, while its greed and rapacity seem well-nigh unlimited. On several occasions when domestic poultry have nested away in the woods, I have known as many as nine eggs removed in a single night. A small "roadway" among the long grass on one occasion revealed the fact that the eggs had been carried off by some species of vermin. A trap was set in the "roadway" and skilfully covered with grass, and soon after dusk the robber of the eggs was secured—a large hedgehog. How these animals carry eggs I have, strange to say, never been able to discover. That they do carry them there is not the shadow of a doubt. This opinion receives confirmation from the fact that, in the case just referred to, notwithstanding that the most diligent search was made, no particles of the egg-shells could be discovered. As I was anxious to find out how hedgehogs carry eggs, I had one of these animals put into a walled garden for the purpose of watching and seeing him in the act. He collected all the dead leaves from beneath the fruit trees into a corner, in which he concealed himself during the day. As he never emerged from his concealment till dusk, it was difficult to watch his manœuvres; but the activity he displayed in running about was most remarkable. Eggs were laid down, but nobody ever saw him lift one, though he occasionally had them removed before morning, when

shells crunched up were found among the leaves. As numbers of cats prowled in the garden, it was very amusing to watch them chasing and pouncing upon the hedgehog. Whether they were attracted by the smell, or mistook him for a rat or a rabbit, it would be difficult to say. On a moonlight night several observers, imbued with a spirit of curiosity, sat up till late watching them, and we were surprised at the pace at which the hedgehog ran, in order to elude the cats—dodging sometimes below a gooseberry-bush, where he would remain for a while, his enemies watching intently the place where he disappeared. In a short time he would pop out at the other side, and run across a green to the opposite side of the garden. Our attention was directed to a large white cat sitting on the top of the garden-wall, cowering ready to spring on her victim when it should come near enough. From a reasonable distance puss at last made a bound, and landed right on the back of her supposed prey; but when, instead of digging her claws into the soft fur of a rabbit, she felt the sharp points of a clump of spears, puss leaped high in the air, gave a loud scream, and scampered off, a wiser and, it is to be hoped, a better malkin.

The depredations of this midnight marauder are not confined, as many think, to eggs and small birds. It has been known to invade the pheasantry and kill the young birds even when half-grown. This fact I would have been slow to believe had I not had it confirmed by personal observation. While rearing pheasants in my younger days, I found in the morning at the back of the coop a bird, about half-grown, mostly eaten, while the remaining young birds seemed very much scared. Thinking it was a cat, on the following night I sat down with my gun among some bushes close by. When it became too dark to discover any object on the ground, the hen in one of the coops screamed, while the birds fluttered out in the darkness in all directions. As I ran forward I saw the depredator to be a hedgehog, when, needless to say, the destruction among the pheasant poults was quickly avenged. I have known other instances of the destructive habits of hedgehogs, such as the killing of hens in the coops, and sometimes the tearing out of their entrails and eating their heads off. Since the successful hatching of either pheasants, partridges, or grouse is impossible when these hateful vermin are allowed to exist, it is of the utmost importance that they should be kept down.

The hedgehog displays great cunning in the concealment of her young. Should they be discovered when newly born and the nest

tampered with, the mother never returns, but leaves them to perish. If young are produced in confinement, the mother occasionally devours them, as is sometimes done by other animals. Such, at least, was my experience with one that gave birth in these circumstances. On another occasion I found a large female in the first week of June, and had her turned out in the high-walled garden of a neighbour, knowing from experience that my own garden would not keep her in. In a few days she produced her young, but, unfortunately, the curiosity of two boys was so strong that they searched for and found the nest. It contained three young ones, which were born blind. They were of a whitish-blue colour, and their spines, though formed, were quite dumpy, white, and flexible. I had the helpless creatures put back in the nest, but the following day they were all dead, the mother having evidently deserted them. When a few weeks old and able to travel, the instinct of the hedgehog accords with that of the fox, which never fails to remove her young as soon as she knows that her hiding-place has been discovered.

Recently I found three young hedgehogs among some rough vegetation, and though of considerable size they had evidently not yet deserted the nursery. Watching from a distance in the evening, I observed the mother wending her way towards her progeny with the view of suckling them. After waiting about a minute, I stealthily approached, and, as I expected, found her in the act. She was lying on her side like a dog or cat, with which we are all familiar. I put both mother and babies in my handkerchief, and then placed them in a shed where they had plenty of room to run about, but from which they could not escape. I fed them on bread and milk, and they soon became reconciled to my presence, and it was most interesting to see them being suckled. Some hay was put in a box so that the animals might use it as a bed and hiding-place. I discovered, however, that the mother would not reciprocate my kindness, but by collecting a large number of leaves she made a most comfortable nest.

It is a never-failing law of nature that, in all circumstances, animals are largely endowed with the instinct of self-preservation. While the lion trusts to its strength, the fox to its cunning, and the hare to its swiftness, the precautions of the hedgehog for its safety are of a very different character: it relies entirely on its spines. On the approach of danger it never attempts to get out of the way, but puts itself into an attitude of defence by tucking in its body, head and feet, and converting

itself into a ball of impervious prickles. Protected by this hedge or fence, the hedgehog is one of the most curious objects in nature.

The STOAT is another species of vermin which the game-preserver uniformly dreads. Where rabbit-trapping is practised, these pestilent animals are kept down by being frequently caught when going out and in to rabbit-holes. So bloodthirsty is the stoat, that incalculable mischief must be done where these animals are allowed to exist. Both ground and winged game fall victims to their ruthless pertinacity.

If unexpectedly scared by the approach of any person, they will lose no time in finding their way into a stone wall or a heap of stones which may be at hand, and there they will in the most impudent manner look out in the face of the intruder, "spitting" out their invective as if they had been injured by being disturbed. This impudence of looking out of a hole where it regards itself as safe is very frequently the means of its destruction, especially if the intruder should be a gamekeeper armed with a gun. The alacrity with which they can disappear from one hole and make their appearance a few feet in advance in a stone wall is remarkable. I have more than once fired at those vermin when their heads were exposed, and as indicated, although the pellets battered the stones at the immediate spot, to all appearance the stoat had evaded the shot and escaped uninjured. The pertinacity of this animal is seen in the long distances and length of time it will follow on the track of a rabbit, which not unfrequently becomes so terrified as to lie down and squeal before the stoat comes up to it. They never fail to seize their prey by the neck, generally behind the ears, where the blood is most accessible. Having witnessed a stoat kill a half-grown rabbit, and having driven the intruder off, I carefully skinned the back of the victim's neck, and found behind the ears two small punctures as if they had been done by a needle, and was of opinion the tusks had penetrated the spinal cord.

On another occasion I observed one pursuing a rabbit for a considerable time in the manner indicated in a field at the side of a plantation. Bunny ran round, describing a circle, and entered the wood. In a short time the stoat made his appearance, following the trail by scent like a beagle. In a few seconds the rabbit again came out into the field and performed the same manœuvre, its pursuer following the while with unerring accuracy. A third time it came out into the open and sat

down a short distance from where I was partially concealed in the hedge. It was clear that its doom was sealed, as its heart was beating violently against its ribs and its piteous squealing was heartrending. The stoat soon made its appearance, and it was interesting to see the cool business-like way it leapt on its victim's back and in a second inflicted a wound by biting it behind the ears, which terminated the sufferings of bunny. Not having a gun with me, I could only look on, but so soon as the tragedy was enacted I interfered, tied the rabbit with a bit of string to the hedge, and hurried home for a trap. On returning I discovered that the stoat had managed to eat a small portion of the neck, but again driving him away from his victim, I used it as a bait and set the trap. In five minutes the murder of the rabbit was avenged. As is well known, at certain seasons many ferrets are of little use in bolting rabbits, and it was regarded as a boon when a female had young old enough to be left at home, as she then would stick at the rabbits and either make them bolt or kill them in the burrow. The stoat, however, must be more dreaded by bunny. Once when ferreting in a hedgerow where rabbits were destroying the head-rig of a field of barley, rabbits simply would not "bolt." Hole after hole where a large number of rabbits could be seen any evening was tried, but with the exception of a few small ones none would come out. All at once about half a dozen were seen to bolt out of one of the burrows ferreted only a few minutes before. Thinking the ferret had got back unobserved, and hurrying back, I witnessed a stoat come out of the hole from which the rabbits made their hurried exit. Discovering danger, it quickly scuttled back again, and in a second or two was taking stock of the danger from the mouth of another hole. Though largely endowed with the instinct of self-preservation, stoats evidently imagine they are safe so long as they keep in the hole, though impelled by curiosity to "keek" out. In this case, however, he was mistaken, as raising the gun slowly to my shoulder—a sudden movement would have scared him—I glanced along the barrels and pressed the trigger, killing him on the spot.

It is a mistake to suppose that the attacks of stoats are confined to four-footed animals or young game. Their depredations are confined to no class which they are able to kill. I once watched one in a spruce tree about a dozen feet from the ground. My attention was attracted by seeing a well-fledged wood-pigeon tumble down from the tree, and observing by a movement of its wings that it was not quite dead, I

looked up for an explanation. A stoat was making its way to the ground, and immediately it had arrived it seized the pigeon and with surprising dexterity carried it through a hedge and across the public road. It went at a remarkable pace, bearing such a large bird; and by a series of bounds, of between three and four feet, it would quickly have got out of sight. As I ran up it disappeared, leaving its victim, which was bleeding at the neck. Tying the pigeon by the feet to a bush, and being only a short distance from home, I ran for a trap and in a few minutes secured the stoat.

Another example of how these vermin catch their prey was witnessed when fishing in the Tweed. Attention was attracted by the loud screaming of a curlew, and as I looked round it was seen flying in a peculiar manner straight up in the air, till it reached the height of fifty or sixty yards. It then became quiet, and began to descend in circles till it reached the ground, when it came tumbling down the hillside. Throwing down the rod, and running forward to find an explanation of this strange phenomenon, I noticed a stoat, which quickly disappeared among some bracken. It had seized this most wary bird on the ground, which bore it aloft till, weakened by loss of blood and the weight of its adversary, it fell to the earth as described. On picking it up, the punctured holes on the neck revealed where it had been seized. Fortunately for the stoat I had no gun, and was too far distant from any keeper's house to get a trap.

As has been seen, stoats climb trees to capture their prey, and I was somewhat surprised once when at Castle Menzies at finding one in a pole-trap eight feet from the ground. This, the keeper stated, was the sixth that had been captured in the same manner in a short time, and which he exhibited for the inspection of the curious.

The stoat, although a comparatively small animal, is in the habit of travelling very considerable distances, and will settle down at a spot several miles away from his former dwelling-place. In such cases the first indication of his presence is some unlooked-for depredation which attracts the attention of the keeper. On one occasion I spent a few days shooting in a district in Forfarshire, from which vermin had been carefully exterminated. One morning the keeper called my attention to an exceptionally large stoat which he, without hesitation, affirmed must have travelled several miles. Upon interrogation, he satisfied me as to the correctness of his surmise, for had it been otherwise he must have



Stoat chasing Mountain Hare.

had previous indications of the animal's presence. Having my gun in hand, I stood waiting his coming out from a heap of stones, where unperceived he appeared to be amusing himself. To my surprise I shortly thereafter saw him about a hundred yards in advance posting up the side of a stone wall with great speed. Knowing that he had not seen me, and had consequently no apprehension of danger, I was curious to know the motive by which he was impelled. I stealthily followed in pursuit, and was interested to observe that he occasionally raised his head in the air as if attracted by the scent of prey. Having apparently measured his distance, he again pressed on with increasing speed, as if impelled by some terrible instinct. Hitherto, although familiar with the movements of the stoat, I was not prepared for the alacrity with which he kept in advance. Latterly he seemed to become desperate with excitement, when I was interested to discover a brood of partridges run screaming from the side of the old stone fence right across the field and over a knoll. This movement on the part of the partridges appeared to disappoint and surprise the stoat, who halted as if in a difficulty as to his future action. By this time I got fairly within shot, as in his anxiety to get among his prey he was oblivious of my having been in pursuit. I fired, and no sooner had I done so than I felt I had made a mistake, as I should have liked to have seen how he met the unexpected contingency. As it was, on going forward I found it was a very large stoat, which had doubtless done much mischief in his day.

It is a never-failing law of nature that where animals which have a tendency to increase rapidly have been placed, checks are also found by way of counterbalance; but in the fauna of Australia and New Zealand neither rabbits nor their natural enemies appear to have been included. Man, however, who sometimes presumes to be wiser than the Frammer of Natural Law, introduced rabbits into these countries, and with the most ruinous results. I am not aware when they were at first imported into these colonies, but for some years they were confined to a small area of twenty thousand acres in the extreme south of South Island, and were at that time taken little notice of. In Southland and Otago the ravages of rabbits became a serious matter, and notwithstanding the appeals of the Crown tenants, the Provincial Government looked on with indifference, till those engaged in agricultural and pastoral pursuits were practically ruined. At last a Parliamentary Committee was appointed to investigate, when evidence was given that

“on a run of 100,000 acres in the Queenstown district £7000 had been paid in two years in rabbit extermination.” The Parliamentary Committee in its report suggested that “the least expensive and most certain remedy is that provided by nature itself—viz., the distribution of the natural enemies of the rabbit throughout the infested country.”

As a consequence of the above report, I was appealed to in order to collect some hundreds of stoats and weasels to transport to the colonies referred to. To collect hundreds of these animals without being maimed by traps is no easy task, but when money is ungrudgingly spent it can be accomplished. In my boyish days I often wondered how Samson caught the three hundred foxes he turned among the corn of the Philistines, when it took the Earl of Wemyss's hounds an entire day to catch one; and, in like manner, I at first thought that the collecting and transporting of five hundred stoats and weasels would be by no means a simple accomplishment. The machinery, however, was set in motion. Advertisements were inserted in provincial newspapers, and circulars were sent to gamekeepers all over Scotland. In due course they began to arrive, and after hundreds were collected a man was despatched to New Zealand with them. It will thus be seen that I have had facilities afforded me for observing many of their habits and peculiarities hitherto denied to the closest observer.

Boxes were made with a division so that the animals could be shut in one compartment while the other was being cleaned, and three stoats or weasels put into each box. As the stoat is of an unsociable nature, I soon discovered this method would be most unprofitable, as in every case two of them were killed and the survivor generally died from his wounds. Frequently parts of those killed were devoured by the survivors, though other food was beside them. This gruesome trait in the habits of the weasel tribe is well known to gamekeepers. In their wild state nothing makes a better bait for trapping stoats or weasels than one of their own species. Acquiring knowledge by experience, I got boxes made and kept them separately, with the most satisfactory results, and most of them arrived safely in New Zealand. Shortly after they were seen ninety miles from where they were turned down.

Though both stoats and weasels are largely endowed with curiosity, the latter are much less shy than the former. I have frequently observed their footprints in snow round a box-trap, and though they would run

round it a good many times, in most cases weasels ventured in and were secured. It is otherwise with stoats. Known from their larger footprints and longer strides, they would also run round the trap, which they evidently regarded as dangerous, and in many cases did not venture in.

How stoats carry eggs is an interesting question. That they do carry them is beyond dispute, unless they take the time and trouble to roll them. Being annoyed by magpies which nested on an adjoining property, I drilled small holes into the sides of three eggs of domestic poultry, inserted a grain of strychnine into each of them, stirred it with a bit of wire, and covered the holes with bits of gummed paper. Placing the eggs in the nest of a pheasant which the magpies had robbed, I expected thus to destroy them. Going early the following morning, I was chagrined to discover the eggs gone, and no traces of magpies or anything else being found dead. Making a diligent search, I got a glimpse of something white beneath some spruce branches about eighty yards from where I deposited the eggs. Lifting the branches, I found the eggs, two of them intact, and the third broken and partly devoured, with a stoat lying dead beside them.

My friend John Macdonald, whose fowl-house was in a quiet corner near a wood, in which were both nest or china eggs and real eggs, could not account for the disappearance of the eggs, and suspected rats, although he had not seen one about the place. One morning, however, after a shower of snow, he noticed a track which looked as if something had been rolled along it. He followed the trail for about sixty yards, and there under the root of a fallen tree he discovered five nest eggs and a number of real eggs, two of which were intact. From the footprints in the snow he perceived that a stoat was the depredator. Curious to know how it managed to get the eggs so far, he concealed himself and watched. After a long wait the stoat, already assuming his winter dress, appeared and made straight for the fowl-house, in which some new-laid eggs, left on purpose, were awaiting him. In a very short time he came out of the house, tail first, drawing an egg along with his fore-feet. After he got it away a bit, he reversed his method and propelled the egg in front with his breast and fore-paws. The exact position of the egg could not be distinctly seen from the ambush, but twice on the journey, when he came to uneven ground, he again turned tail and went backward for a few yards at a time. The time he took was not noted,

but as near as could be guessed it was between three and four minutes. Immediately after depositing the egg beneath the root, the stoat returned to the fowl-house for another, and was following the same tactics when he was stopped by a charge of shot.

Though the weasel tribe as a rule kill their prey quickly, some experience is necessary before a young one acquires proficiency in slaying. Recently a brood of stoats made their appearance near my home, and I quickly got traps planted, by which I secured the mother and three young ones. A day or two after a young lady observed a stoat and a young rabbit rolling over and over, playing as she thought on the green in front of the window. The rabbit escaped and ran straight into the house through the open door. The stoat chased it, but did not venture across the threshold. My attention being called to the matter, I propped up a small Caithness flag with the three sticks in the shape of the figure 4, and, using the rabbit as a bait, secured the stoat in a few minutes. This method, I am informed, is that adopted by the Lapps in procuring the valuable ermine fur of commerce. Though the animal may be crushed flat, the skin is in no way injured.

As will be seen, the preservation of game is impossible where these creatures are allowed to harbour and breed, and their destruction must ever demand the attention of the keeper. Since the passing of the Ground Game Act in 1880, these pestilent animals have in many places become more plentiful. Rabbit-trapping in a large measure has given way to snaring, with the result that the weasel tribe run in and out of burrows without molestation.

The WEASEL, though smaller in size, very much resembles the stoat. It has not, however, the black-tipped tail, neither does it change its colour in winter. It is a bloodthirsty little wretch, and where young grouse are abundant the destruction caused by weasels is incalculable. Gamekeepers who have had experience in rearing young pheasants are well aware of the havoc one weasel will commit if it should obtrude its presence in the rearing field. So destructive are the weasel tribe in their habits, that should one effect an entrance where rabbits or chickens are being reared, everything that partakes of life is ruthlessly destroyed. They are merciless tyrants, meaningless murderers, shedding blood from mere wantonness. In illustration of the bloodthirsty and ferocious character of the weasel tribe, I may mention that a neighbour's boys

had a pair of rabbits confined in a hutch, with a brood of eight young ones nearly half-grown, and a second litter, seven in number, about a fortnight old. Hearing a noise about seven o'clock one morning in the rabbit-house, the boys went to ascertain the cause. On opening the door a weasel made his exit by a small hole and effected his escape. It was, however, discovered that the entire fifteen young rabbits had been cruelly slaughtered, the speck of blood behind the ears revealing the spot where the weasel tribe, with unerring accuracy, seize their prey and quickly terminate the sufferings of their victims. The noise which attracted attention was caused by the old pair of rabbits defending themselves as they best could, but there is no doubt that had attention not been attracted they would have shared the same fate as their progeny.

When collecting the stoats and weasels for New Zealand, I had one of the latter confined in a little box and placed in the large cage already referred to. Introducing a dozen sparrows into the cage, I pulled with a string the sliding-door of the box and from a window watched with interest the result. Directly the slide was drawn he bolted out and without a moment's hesitation rushed at the sparrows. The cage being eight feet long, the birds flew from one end to the other, and the dexterity displayed by the bloodthirsty creature, but for ocular demonstration, I would not have believed, and which it must be confessed surprised me much. Jumping and catching them in the air as they flew past, giving them a bite on the neck and off after another, was but the work of a moment, and in an incredibly short time the entire dozen were lying dead on the floor of the cage. I have always regretted not having timed the destruction, but I do not think it lasted more than two minutes. Look at his first-cousin the ferret. I can remember when kennel-boy at Ladykirk it was my duty to clean out the hutches where these animals were kept. They were fed on porridge and milk warm from the cow, one being kept specially for puppies and ferrets. They had never tasted flesh of any description. On one occasion I was blamed for not having carefully secured the door after feeding them, as a brood of seven full-grown, with the mother, made their escape during the night. Within twenty yards was a hen-house in which were thirty fowls. There was sufficient room below the door for the bloodthirsty creatures to get in. In the morning it was discovered that not a single fowl was alive, a number of them having their heads practically eaten off. It must therefore be apparent how destructive

weasels will be among young game, either winged or four-footed, and how constantly they must demand the vigilance of the keeper.

Weasels are frequently caught in traps set for moles, which indicates that they hunt for those animals. In one instance, I knew of two weasels having met in a mole-run exactly in the trap which secured them both.

One day, crossing the road in front of me, a weasel disappeared in a bank at the side of the road. Going to the place I saw the hole where it entered, and that there would be no difficulty in digging it out. Taking the precaution of pushing a stone into the hole, I went to a cottage some distance off and borrowed a spade. Commencing to dig, I was not long in unearthing the vermin, and was fortunate enough to crush it with the spade when trying to make its exit. It was interesting to note that it had a young one in its mouth, which it had evidently intended to carry to a place of safety. Excavating a little farther, I came upon the nest, which contained five small blind slate-coloured creatures apparently only a few days old. I have stated the creatures were blind, and it is perhaps worthy of note that the period of gestation of the weasel tribe is six weeks, and that the young ones are six weeks old before their eyes are opened. It is no unusual thing to see young ferrets out of their nest tearing away at a rabbit or other food before they can see. Why the young of the weasel tribe should be so long blind is difficult of explanation. I am not aware of the young of any other animal except the badger having their eyes so long closed. Rats are also born blind, but in fourteen days begin to open their eyes, and, as every schoolboy knows, this is longer than most animals. As already said, the weasel was carrying a young one, and it is not uncommon for these animals to shift their quarters, carrying their young, one by one, to a new home. This I was fortunate in seeing one afternoon when walking along a railway. Watching at a distance, I noted she repeated the manoeuvre three times, down one embankment, across the rails, and up the other, conveying them into a field of hay. Here we discover an instance of strong parental affection implanted in the breast of one of the blood-thirstiest and fiercest and cruellest of all our carnivora.

Weasels are most expert swimmers. Once when on a visit to my lifelong friend, the late Dougal Campbell, the veteran stalker in Strathconan Forest, we took a stroll up the glen on a Sunday afternoon. The day was fine and calm, and Loch Banachran was as smooth as a sheet of glass. Walking by the loch-side and looking across, our attention was

attracted by a ripple on the surface of the water near the opposite bank. It was evident some small animal was rapidly swimming towards us. Curious to know what it might be, we sat down within twenty yards of the shore to watch and wait for its arrival, as it was evidently making straight for where we were. When near land we ran down to meet it, when the little swimmer redoubled its former rate of speed, doubtless with the view of gaining the shore before we could approach. Observing it to be a weasel, Dougal ran forward, and with a blow from his staff placed it *hors de combat*. The keeper is the sworn enemy of the weasel tribe, and though I felt sympathy for the plucky little swimmer, no doubt the murder of many a grouse chick was avenged. This is the only occasion I have ever seen a weasel attempt to swim a distance, though I know it to have been observed by others. My friend Dr Hunter, while tenant of Altalraig on Loch Tayside, had a similar experience. One fine morning in the beginning of August, when the loch was like a mirror, he took two young ladies—his nieces—out on to the loch to teach them how to row a boat. When well out in the centre one of the ladies observed, "I see something on the water; it looks like a beast." The Doctor replied, "It is only a young duck, and I must go and see when it will be fit for shooting." He had a good look at it, and saw the long V-wake it was making on the calm surface of the loch. Getting near, the lady again said, "It is certainly a beast of some kind." When quite near, the Doctor, who was rowing with his back to it, turning round, at once saw it was a weasel making its way across the loch, which is about a mile wide at this part. On rowing to it, it doubled, and after two or three unsuccessful attempts to strike it with an oar, it raised its head as if to make an attack on the inmates of the boat, much to the dread of the young ladies. Eventually a blow from the oar sent it to the bottom. The apparent cruelty was condoned by the remembrance that the Doctor had heard many a young rabbit's piteous wail, and seen its great distress when pursued by this merciless animal, so destructive and bloodthirsty in its character. It would be interesting, however, to know by what instinct it was impelled to attempt such a formidable enterprise.

The RAT is one of the most cunning of the beasts of the field. After it has grown to a large size it acquires an appetite for flesh, and kills domestic chickens, ducklings, pigeons, rabbits, &c. I can remember,

when quite a boy, having a young pet rabbit, and one night left it in a hamper in a stable. In the morning I found a rat had gnawed a hole in the hamper and killed and devoured my pet. When rats burrow and breed out in hedgerows, which they do in large numbers, it will be seen how destructive they must be to game, and more especially when partridges and pheasants are numerous, hedgerows being favourite nesting-places of these birds.

Why rats have of late years become so plentiful and so destructive to the farmer and sportsman is a question pressing for solution. Leaving buildings and burrowing in fields and hedgerows like rabbits, though not a modern innovation, has become more common than it was fifty years ago. At that time rats took up their summer quarters in the fields, but, as a rule, returned to stackyards and the haunts of man when food became scarce on the approach of winter. Now it is found that in deep snow, when their tracks are easily known from the impression made by the tail, they in a large measure feed on turnips and potatoes that may be left in the fields. It is generally believed that the advance of sanitary science has more to do with rats now burrowing in fields and hedges like rabbits than aught else. Formerly the drains of houses and farm buildings were built conduits, which were invariably tenanted by rats, who constituted themselves the scavengers of society by picking up and devouring whatever found its way into the sewers that was congenial to their taste. Now, however, fireclay pipes, Buchan traps, and cement have displaced the built conduits, and in this way rats have in a great measure been banished from farm buildings. With the modern rat-proof devices on which stacks are built in farm steadings and other floors, rats have not the same facilities for living in and undermining buildings as of yore. These have a great deal to do with the revolution which has taken place in the haunts and habits of the race of *Mus*.

How to fight the rat pest is a problem which presses upon the attention of agriculturists and game-preservers. The only solution of the matter will be found in co-operation. Persecute rats with traps or otherwise at one place, and they will be found to decamp to more congenial quarters. One of the peculiarities of the rat is the marvellous instinct which it has in anticipating the approach of danger. The distance rats can travel is surprising. For years they were known to make their appearance at Dalnaspidal, which is eight miles from Dal-

whiunie on the one side and eleven from Struan on the other, when the lodge and kennels became tenanted, and they left again soon after the shooting-party took their departure. It will thus be seen that to attack them merely in any given locality is as foolish as it must ever prove unsuccessful. What then is wanted, is for those interested, in all parts of the country, to co-operate and simultaneously wage warfare by such means as may be available against this dreaded pest of agriculturists, game-preservers, and of society at large.

Poison is the most successful remedy. An old friend, an East Lothian farmer, once wrote me as follows: "I had a large bean-stack swarming with rats. I surrounded it with pieces of bread on which phosphorus paste was spread. The whole had disappeared when I looked next morning. Three days thereafter the stack was threshed, and in it were found sixty dead rats and three living ones." The efficacy of phosphorus paste is therefore beyond dispute, but the price of it, as supplied by druggists, is prohibitive. Being of so deadly a character, it would be an immense boon to agriculturists and game-keepers if a chemist could be got to manufacture it at a reasonable price.

Any intelligent person can manufacture it for himself. In the first place, he should procure a small glass churn. Get two pounds of lard, or dripping from roasts; heat it till thoroughly melted, and pour into the churn. Slice down two ounces of phosphorus not thicker than a shilling, and put in among the melted grease. Screw on the lid, and churn till the phosphorus is dissolved. Add the contents of a two-pound tin of Lyle's Golden Syrup. Place the churn in cold water and churn away till the mixture becomes stiff and cold. The operator will then be in possession of over four pounds of phosphorus paste, which, as has been said, is a mixture second to none for the destruction of rats. The wholesale price of phosphorus runs between three and four shillings a pound, so, as will be seen, four pounds of the paste can be made at trifling expense. As is well known, phosphorus can only be kept in water, otherwise it would go on fire. It is therefore a little difficult to manipulate. On taking it out of the water it should be handled with and sliced on wet blotting-paper.

In hard weather, or when potato-pits are cleared away and food becomes scarcer, is the time to resort to poison. If in burrows in the fields and hedges, they should be attacked as subsequently described.

Noting a hole in a wheat-stubble field which appeared to be tenanted by a number of rats,—as a large quantity of the heads of wheat had been collected in and around the hole, showing the manner by which the vermin lived,—grating some bread and putting it through a sieve, I put as much paste as a basinful of the crumbs would stand without getting into a lump by stirring with a stick, and pushing it down the burrow, the various entrances were firmly stopped up. Passing about a week after, it was seen the burrow had not been opened, so, prompted by curiosity, I dug the hole out, and discovered five adult rats dead. On another farm near my home, an old conduit came through the entire length of a large field which was a favourite haunt of rats. They simply swarmed, and their burrows resembled a rabbit-warren. The same remark applied to hedgerows. Procuring some biscuit-meal used for rearing pheasants in their babyhood—bread-crumbs do quite as well—the farmer and I mixed it with phosphorus paste, and put a quantity down every hole and firmly stopped them up. It is desirable not to use bits of bread or anything rats could carry and leave outside, as I once lost a valuable retriever through a bit of poisoned bread-and-butter being placed in a coach-house, and which was carried through below the door by rats and left outside. It was gratifying that only about half a dozen of the holes along the conduit were opened again, and the mortality must have been great. Again and again the few opened holes were tried with savoury baits and different poisons, but *Mus decumanus* was too wide-awake, no doubt having discovered danger from the fate of others. We therefore had recourse to traps, planting them in the opened holes and carefully covering them with sand which we carried in a pail for the purpose. The rats could only get out over the traps, so that nine monsters were secured in three days. They were evidently very old ones, and too worldly-wise to be cheated with poison. After securing them, the burrows were not again opened.

Any intelligent person can go over fields, put some poisoned food into the burrows, press a stone on the top of it, and with a spade cover with earth and trample it firmly down. Dean Swift has told us in ‘Gulliver’s Travels,’ that “whoever could make two ears of corn or two blades of grass to grow upon a spot of ground where one only grew before, would deserve better of mankind and do more essential service to his country than the whole race of politicians put together.” In like manner, the farmer or gamekeeper who follows the rules here laid down,

and thus secures immunity from rats on the land, should be regarded as a benefactor to his country.

The instinct displayed by rats in cases I have mentioned amounts almost to reason. An ash-pit placed near a mansion-house in which, along with ashes, a considerable amount of refuse from the kitchen and other garbage was deposited, constituted a perennial feeding-ground for rats. Finding this place a congenial home, they burrowed in the bottom and made holes in the stone wall which surrounded it, thus exhibiting the shoddy work of the builder. When the ash-pit was emptied I put in a granolithic floor, and had the holes in the wall "pinned" and pointed with cement. *Mus decumanus*, however, rose to the occasion, and displayed an amount of intelligence rarely equalled by wild creatures. The back wall of the ash-pit also constitutes the garden-wall, which is ten feet high, the top of which is thickly covered with ivy. On the opposite side of the roadway stands a gigantic elm-tree, which, though it is rotten and hollow in the centre, still grows a profusion of leaves. At the root of the tree the rats burrowed, and it was not uncommon to see half a dozen scamper into the holes. As already said, the tree is hollow, and at places where branches had been sawn off holes exist right into the cavity in the centre of the tree. One day I had a hose attached to the fire-hydrant, and poured a large volume of water by one of the holes into the centre of the tree. As the burrow quickly filled with water, a number of young rats in a "drookit" condition bolted from the holes, and were destroyed by a couple of fox-terriers. The adult rats adopted different tactics. Several emerged from a hole in the tree fifteen feet from the ground, and got out on a branch, which they ran along. As they proceeded the branch gradually became smaller and bent beneath their weight. By this time, however, they were over the top of the ivy-covered wall, into which they dropped, and where, I subsequently ascertained, they had holes down in the centre of it. So interested was I in their cleverness that I sat a long summer evening watching them climb up the ivy till they got hold of a twig of one of the overhanging branches of the tree, and which, with the aid of their prehensile tails, they scuttled along the branch to the trunk in a manner which might do credit to a squirrel. Ugly as a rat's tail may appear, it demonstrates the bounty of the Great Creator in furnishing this lowly creature with such a useful appendage for adapting him to his peculiar mode of life.

The cleverness rats sometimes display in getting into houses, and the difficulty in getting rid of them, is marvellous.

On a farm under my charge, where there had been an absentee tenant, rats had the house and steading practically undermined. Before a new tenant arrived it was necessary that many repairs should be executed. Commencing with the house, the first thing to ascertain was how rats got in. The house, an old one, had some years before been somewhat modernised, and a bath and closet introduced. The plumber had made a hole through the wall near the foundation for his soil-pipe, and, as very frequently happens, it was shoddily built up again, so that rats got easy access. The result was they soon had ramifications through the entire house. The first step, therefore, was to make the hole around the soil-pipe rat-proof. With an admixture of crushed granite and cement this was effectively done. The flagstones which constituted the floors of the kitchen, scullery, pantries, &c., were lifted, a dog being kept in attendance in order that no rats escaped as each flag was removed. Granolithic floors were laid, and it was thought that rats were completely banished from the house. Time, however, proved otherwise. One at least had been left inside. Wood in the scullery was found freshly gnawed, and on close examination a hole under a board adjoining the sink, by which rats found their way into the pipe-boxing and thence up to the bathroom, was discovered. It was found that when the lead pipes had obstructed the passage they had been gnawed almost through, leaving water oozing out, so that they had to be renewed. The new farmer arrived. To sleep at night was impossible, from the continuous scraping and gnawing by rats. The sequel had better be told in the farmer's own words. He said: "I kept a light burning in the hope it would scare them, but it had no effect. One was gnawing at my bed, a mahogany one, when, jumping up and with the aid of the light, I saw a monster scuttle out of the room, the door being ajar. Quickly dressing, and lamp in hand, I searched the entire house, but failed to discover his hiding-place. As it was nearing morning, I sat down in the kitchen in the hope I might again see him. Nor was I disappointed, as he actually looked in at the door, but on seeing me he quickly scuttled back into the scullery. Following him and closing the door, I knew he had no chance of escape, as the floor and every crevice had been carefully made secure with cement. I, however, failed to find him, though I searched every corner, and could not possibly have missed a mouse. Happening to look up, I got my eye on his

lordship sitting on the top of the hot-water tank. Directly he saw he was observed, he retreated back and got behind the tank in such an awkward corner that I could not dislodge him. The tank was warm, but not hot, water having possibly been drawn off late the night previous. I therefore kindled a roaring fire in the kitchen, then sat down in the scullery to await eventualities. Within an hour he began to squeal, and was shortly obliged to come out, when I quickly despatched him with a stick."

Frank Buckland, in his 'Curiosities of Natural History,' states on the authority of Mr Gibbons, "a most intelligent and civil rat-catcher," that in a litter of rats "the males predominate in number over the females. He supposes this very justly to be a provision of nature to keep down the breed." Being sceptical of this, I invited Mr Henderson, the assistant curator of the anatomical dissecting-room in the University of Edinburgh, to a rat-hunt at a farm when threshing some stacks which were infested with the vermin. Surrounding each stack with small-mesh net-wire, a large number were killed. Mr Henderson selected half a dozen far advanced in pregnancy, and, securing the co-operation of Dr Robinson, the Professor of Anatomy, demonstrated that males and females were found in almost equal numbers. In some one sex predominated, and in others the opposite.

That rats breed rapidly is apparent, but geometrical tendency to increase should not be considered without a study of the nature of checks to prevent it. Climate plays an important part as a check on both the animal and vegetable world. Snowstorms and frost destroy the fertility of thousands of eggs, and from personal observation I can testify that young birds, hares, and rabbits succumb to the cold. How far it may have affected rats it is impossible to say, though, as a rule, they find warmth in stacks of corn and other congenial resorts. Away from buildings where cats are kept, rats have comparatively few enemies except man. Weasels and owls may occasionally kill young ones, but, as far as my experience goes, not many. I do not think that either will tackle a large male rat. I once shut a large rat and a stoat together and witnessed the combat. The struggle was a fierce one, but eventually the rat was killed. A few hours after, however, the victor died of his wounds. Even a cat is chary of attacking old male rats. I have a cat which kills many rats, but I have never known a rat over a pound in weight killed by a cat.

Some years ago a correspondence on rats took place in the 'Scots-

man,' in which an old lady neighbour of mine took part, relating some wonderful stories about the number of rats killed by her cats. I resolved to try an experiment. Setting some cage-traps on the irrigated meadows, I secured a number of rats, and eventually got a monster far over a pound in weight. Carrying it in the trap to her house, I laid it down outside and went in. The conversation soon turned on the correspondence in the newspapers, when I remarked that I had brought "a rat" to see her wonderful cats kill it. Those who knew the dear old lady will not be surprised at the answer I got—stupid and ignorant of natural history—"Cats will not kill rats outside like a dog; fetch it in," &c. This was exactly what I wished for, but did not, of course, like to ask it. Taking in the cage with its prisoner, her four cats were brought into the lobby, the doors into the rooms on either side being closed. Some friends she had with her were spectators, and the performance in that lobby quickly assumed all the importance and interest of the arena of a Spanish bull-fight. Turning the rat out of the trap, it immediately jumped up a step of the stair and surveyed its surroundings. The cats kept drawing towards it as a pointer draws on a covey of grouse, but when one approached within three feet, the rat gave a "spit," and the cat jumped back. Slowly ascending the stair, the rat entered a bedroom, the cats following a few feet behind, when the door was closed and rat and cats were left together for the night. The following morning a messenger came for me to fetch my two fox-terriers, as the rat was still in the room. The cats were enticed out and the terriers introduced. In a second or two there was a scuffle, a squeak, and all was over. This rat turned the scale at eighteen ounces.

Among my numerous visits to Dalnaspidal, in Perthshire, I on one occasion slept in the room of the keeper's house adjoining the kennel. I was soon awakened by the gnawing of a rat, which continued the greater part of the night. Informing the keeper the following morning, he simply laughed, declaring it was impossible, as a rat was never known to be in the house, and that I must have been dreaming. The same gnawing continued the following night, and though I searched the room carefully, could find no trace of the varmint. In the morning, however, I made a careful examination outside. A couple of inches of snow had fallen during the night, which assisted me in making a discovery. A number of sticks were piled in a corner, some of them reaching up to the rhone of the kennel, and on them the rat had managed

to reach the roof. Once there, he had no difficulty in ascending to the ridge, which he ran along, and which was within two feet of the sill of the bedroom window. He had then leapt up and commenced gnawing operations on the woodwork of the window, doubtless having made up his mind that more congenial quarters were to be got inside. A hole was made three-quarters through, and another night's gnawing would have completed the job. Unfortunately for the rat, his movements could be read as in a book upon the snow. The pile of sticks was removed, and a hole below the building was discovered in which a trap was planted, and early in the afternoon a large rat was secured. There was no disturbance by gnawing the following night.

Anecdotes of the sagacity and intelligence of rats could be written *ad infinitum*. The continuous warfare that has always existed between this rodent and man, not to speak of other natural enemies, has so sharpened his faculties that, despite every effort to exterminate him, he can hold his own against the combination of his manifold enemies. Though a great despoiler, I have often witnessed and admired the devices he displays to avoid capture, and noted the knowing and wide-awake expression which characterises the race of *Mus*.

ADDERS must be included in the category of enemies to the sportsman. These reptiles are plentiful in many parts of Scotland; and without assuming that they are very destructive to game, illustrations have come under my observation demonstrating the accuracy of the remark. On one occasion when crossing the moor near the Mull of Kintyre, in company of the keeper, we came upon an adder sunning itself on a small patch of grassy ground in the centre of a large tract of heather. After despatching it with a stick, it was observed to be bulged out in the middle, and I proceeded to dissect it with the view of ascertaining on what it had been feeding. It contained no less than three young larks almost fledged, evidently the contents of the same nest. Although, as is well known, reptiles take a considerable time to "suck in" and swallow their prey, the birds must have become the victims at the same time, as the three were intact, with no appearance of assimilation or digestion having commenced. What surprises one is the remarkable powers of distention of the mouth and throat which makes it possible for an adder to swallow anything approaching to the size of a lark.

A more remarkable discovery was shortly afterwards made near the

same place. A party were driving on the Glenbrakrie road when an adder was observed just as they were about to meet Donald Maclean, the gamekeeper on the beat. Donald quickly despatched the reptile, and flinging it into the trap drove with the party to the hotel at Southend. In front of the hotel and in presence of a dozen people, Donald dissected the snake, and to the surprise of every one it contained a freshly-killed weasel. Knowing the dexterity and gameness of the weasel tribe, how the adder managed to kill it is a mystery beyond our ken. The snake was two feet in length, which was a fairly large size for this reptile.

On another occasion, when traversing the Dalnacardoch moor, I witnessed an adder attempting to drag a grouse chick into a thick heather bush. It had seized the chick by the neck and blood was squirting out at both sides of its mouth. On the same moor, when approaching a tuft of heather where a grey-hen was sitting on her eggs, I found the bird had hatched and was evidently in great distress. On approaching she flew a short distance, when an adder was espied killing a newly-hatched chick, while three others lay dead. Needless to say, in both cases the adders got short shrift. After removing the snake and the dead chicks and watching from a distance, the grey-hen returned and collected the remainder of her offspring. Adders are plentiful there, and I have killed numbers when grouse-shooting by shooting their heads off. The pace they can wriggle through the heather, and the instinct they display in protecting themselves, are most remarkable. While driving on the road near Dalnamein Lodge, a large one was crossing the road in front. I put the whip to the pony with the view of running the wheel over it. When within a few feet of it, its fate seemed inevitable; but in an instant it threw itself like a clew to the side, and disappeared among some rushes.

While, as a rule, adders will not injure any one unless they discover they are in danger, I have known them to attack dogs while hunting among the rank heather, or among rushes by the side of some sluggish mountain-stream. No doubt in all such cases it has been in self-defence, being apprehensive of danger from the dog. The effect of a dog being bitten by an adder is that the blood becomes rapidly poisoned, when the animal swells and manifests great pain. Although the adder's bite in such circumstances very often proves fatal, still a dog frequently recovers without recourse to medical or surgical treatment. Death or recovery will depend much upon the part bitten, and also upon the quantity of

virus injected into the blood. The size of the animal is also a material consideration.

When shooting at Struy in Strathglass, my retriever was bitten by an adder the evening prior to leaving for the south. Poor old "Cad," he swelled very much and was unable to walk. Getting him home, in a few days the swelling disappeared and he soon recovered.

The poison of an adder must be very deadly. While breaking a young wild pointer on the steep face of the "Sow of Atholl," I espied an adder which wriggled in beneath a boulder. I could not reach him with a stick, but tying my pocket-knife to it, I tried to stab him. This I could not manage to do, though I could touch him. He had seized the clear steel, as two blue marks the size of pin-heads were on it a little less than half an inch apart.

Though loathed by everybody, and destroyed wherever and whenever an opportunity presents itself, there is something beautiful in the markings of an adder. The male is easily known, being brighter, with more vivid markings and a bluntness of its tail, that of the female going to a much sharper point. Adders bring forth their young alive, and a much-disputed point in natural history frequently takes place in the columns of our newspapers in regard to them. Pennant and many others have stated that, when threatened with danger, young adders take refuge in their mother's body, she opening her mouth for the purpose of letting them in. One writer in the 'Scotsman' asserted he had seen it, and "seeing is believing." On the other hand, scientific authorities say it is impossible. I can throw no light on the subject as to who is right or who is wrong, but can only speak from my own observation. When crossing the island of Jura from Ardlussa to Glen-garisdale with the keeper, we came upon a large adder basking in the sun on our almost trackless path. It made for cover on our approach, but the keeper killed it with a blow from his staff, almost severing it in two. A number of young ones, several inches in length, thus got a hurried introduction into the world, and it was interesting to observe how largely the unborn creatures were endowed with the instinct of self-preservation, and with what dexterity they wriggled into and disappeared among the heather. Had the theory of Pennant and his disciples been correct, instead of wriggling to hide in the heather they would naturally have hastened to the mother's head.



Eagle catching White Hare.

CHAPTER III.

BIRDS OF PREY.

THE birds of prey, to whose depredations grouse are exposed, are numerous, and differ widely in their habits and mode of attack. Some, like the eagle, peregrine falcon, sparrow-hawk, and merlin, are bold, dashing, and straightforward, as if scorning to take any covert advantage of the object of their pursuit. Others again, like the crow species and the magpie, partake more of these peculiarities which mark the cunning and contemptible thief. Instead of openly attacking the parent birds, they prowl and dodge about during the breeding season, robbing nests and killing the young broods before they are many days out of the shell. There is still another class, not of such destructive habits, that require close observation during the breeding season. The buzzard, the kestrel, and the owl tribe belong to this category.

The part which birds and beasts of prey were destined to fill in the scheme of creation was doubtless to reduce the number of those creatures which constitute their food-supplies. When man, however, appeared on the scene, his first duty—he having “dominion over the fish of the sea, and over the fowl of the air, and over everything that creepeth upon the earth”—was to preserve those creatures which were useful to himself, and to destroy those which preyed upon the latter, so that the mission of these murderers was no longer necessary.

A century ago matters in the Highlands of Scotland were pretty much as they were probably since the creation, the balance of nature being left to adjust itself. The result was that birds and beasts of prey rendered sheep-farming impossible. By-and-by a better state of things emerged, especially as game preservation began to be practised.

The GOLDEN EAGLE, whose muscular power, splendid proportions, ✓ and true dignity mark him out as the king of British birds, stands at the head of our list of birds of prey. Though very destructive to game, I am no advocate for their extermination. There are few sportsmen nowadays who would grudge the eagle his food-supplies, even although these were confined to the mountain-hare, the ptarmigan, and the grouse. No one who has seen this splendid bird soaring amid the Grampians can fail to admire the power and dauntless energy of that king of the feathered tribe—the pride of all Scottish naturalists.

As indicated, a century ago eagles existed in great numbers, and such was the depredations committed among the flocks during the season of lambing—being the time when a large supply of food is required by the parent birds for their young—that every device was employed and expense incurred by rewards for their destruction. From March 1831 to March 1834, in the county of Sutherland alone, 171 old birds, with 53 young and eggs, were destroyed. While this shows that the bird is not of that extreme rarity which is sometimes supposed, it at the same time tells us that if the war of extermination be continued we shall ere long look in vain for this appropriate ornament of our northern landscape.¹

Public sentiment regarding this bird has undergone a pleasing change. Many Highland proprietors began to fear that eagles might

¹ Nat. Lib., vol. ix. By Sir Wm. Jardine, Bart. Edinburgh, 1838.

become extinct, and so they gave orders that eyries were not to be interfered with. What is the result? Eagles are more plentiful now than they were thirty years ago. Indeed, there was no danger of their becoming extinct, as what is the streak of sea between Norway and the north of Scotland to the wing of the eagle? My old friend Adam Ross, who was so long gamekeeper in Strathmore, in the level county of Caithness, caught many eagles in traps set for foxes, into which the eagles blundered on their arrival. They were frequently seen there before repairing to the mountainous districts of Sutherland. A number of lambs were at one time carried off by eagles from a farm in Strathconan. The following year they again nested in the same rock, and the farmer complained to Mr Campbell, the head stalker, that he would be sure to suffer a second time from the ravages of the "dirty brutes," as he termed them. The stalker in turn communicated with the proprietor, who, though a strict protector of eagles and of everything rare, gave orders that both birds were to be shot. Knowing that I was anxious to procure an eagle as a pet, Mr Campbell wrote that now was my chance, as the eaglets were hatched, and he had, with the aid of his glass, seen one of the parents carrying a grouse to the eyrie. He further stated that the ledge on which the eyrie was placed was not far from the top of the precipice, and he thought that with the aid of a rope it would be easily reached. Purchasing thirty yards of strong rope, and telegraphing to him to meet me the following day, I made an early start for Muir-of-Ord. I got the mail-gig up the Glen for twenty miles. Mr Campbell met me as arranged, and drove me the remaining six miles in his trap. On the way up the Glen I stated my opinion that, if we robbed the eyrie of the young, it was most unlikely that the parent birds would attack lambs, and therefore it was a pity to destroy them since his employer was anxious to retain them so long as they did not commit any further depredations. He acquiesced in this, and the following morning we started for the rock, an assistant carrying the rope. A birch tree grew out of the steep bank above the eyrie, and to it we repaired. The rope was carefully tied round my waist and I was let gently over. The ledge on which stood the eyrie was only about twelve or fourteen feet from the top, but the rope assumed a rotary motion, and on looking down my experience was anything but pleasant. Not only was the precipice perpendicular, but at the bottom the ground was so steep and rocky that it was difficult to know when the precipice ended and the "climbable"

ground began. I felt somewhat giddy besides, and reflected on the lines:—

“The awful gloom beneath
Seemed like the pathway down to Hell.”

In a few seconds I reached the ledge, which spread out to a platform eight or ten feet wide, in the centre of which, overhung by a rock, was the eyrie, consisting of a great number of sticks, among which was entwined the antler of a stag with five points. The lining of the nest was composed of heather, grass, and wool, in the centre of which, closely cuddled together, were two little downy eaglets, evidently not very many days old. A grouse neatly plucked was lying near, doubtless intended as the rusk of eagle babyhood. The two parent birds kept flying round about, but never came within a hundred yards. I put an eaglet in each coat pocket, but on being drawn up, on account of my joltings against the rock, they were both crushed to death. They may now, however, be seen stuffed in our Royal Scottish Museum. It was interesting to learn that, after thus being deprived of their young, the eagles again nested in a rock on the opposite side of the Glen. By the time the eggs were hatched, lambs were a considerable size, so that the eyrie was unmolested and a pair of eagles were successfully reared. The fact of a second nesting is at variance with the statements of many distinguished authorities, including the Rev. Mr Morris, who records: “If the eggs are removed, it is said that the bird does not lay any more that season.” Even in confinement I have known eagles to lay a second clutch after the first had been removed. As there was no male bird beside her, the second clutch was also lifted and the eggs of a goose substituted. Entering on the process of incubation, the eagle eventually hatched the goslings, but whether she discovered the trick of which she had been made the victim and devoured them, or whether they were taken by rats, which were numerous at the place, is not known. The fact remains that the goslings disappeared. It may be added that, though as a general rule in the case of the eagle a clutch consists of a pair of eggs, three are by no means uncommon.

I was thus disappointed in getting an eaglet. Some time later, however, I was put in possession of a fine female bird from the same property. Securing it in an aviary and carefully supplying it with a sufficiency of food, it grew to a large size. I had then abundant

opportunities of studying its habits, and discovered traits in its character of which I had hitherto been ignorant, notwithstanding many days spent among the mountains with a telescope watching eagles in their native solitude. The dexterity with which eagles use their claws and the power of their grip can hardly be conceived. They do not sink their talons into the carcass on any animal, but simply crush it to death. In putting a dead rabbit beside my pet eagle, he swoops down from his perch, invariably landing on the top of the carcass, and in an instant it is seized in his powerful grasp. In accordance with hereditary habit he must needs go through the process of killing, and, with his wings and tail spread round as if to hide his cruelty, the cracking of bones is distinctly audible. Sometimes for several minutes he will remain motionless in this manner, and when he thinks his prey is sufficiently "killed" he will relax his grip, then turn his head sideways in order to see if it is quite dead. Should there be the slightest movement through the relaxation, he will again close his grips for a minute longer. When he is certain the last spark of life has been extinguished, he commences to devour his victim, the place where the first incision is made depending on what the animal is. It has been asserted that birds of prey invariably begin at the head, but this I have found not to be the case. While the eagle here referred to frequently commences at the head of a rat, he seems instinctively to understand that the skin in the inside of the hind leg of a cat is a tender part, and there he makes his first incision. The manner in which he cleans a bone with his beak shows how wisely nature has adopted that instrument for the purpose. When food in the shape of birds is put beside him, he plucks them before commencing to feed, and this I have found to be the habit in their wild state, as at eyries I have seen grouse neatly plucked, as if by the hands of a professional cook. Small birds and animals, such as young rats, mice, sparrows, &c., he devours entire, skin, feathers, and all. Like most predatory birds, he ejects fur, feathers, and bones in the form of a bolus, oblong in shape. In no case did I ever observe him drink water, though he frequently takes a bath. Carnivorous animals drink a large quantity of water, and it is difficult of explanation why carnivorous birds should not also do so. I have, however, noticed this to be the case in other species of the hawk tribe, and also in owls.

Though graceful on the wing in their native wilds, eagles are

clumsy birds in a confined space. This, indeed, is only to be expected, but I had a splendid opportunity of observing it with a couple of rats. Those animals soon discovered that a superabundance of food was put in beside the eagle, and took up their abode in the aviary by excavating beneath its back wall. They then acted the part of nature's scavengers by devouring anything left by the eagle. The rats were frequently observed feeding before it was quite dark, and as the days grew longer they even ventured out in daylight, but on the slightest movement on the part of the eagle they would scuttle into their holes. Though I was interested in watching them, it was not desirable to encourage rats about the place, and I resolved to have them destroyed. Securing a board to the wall and propping it up, I so arranged it that by pulling a string the board would fall and prevent the rats from escaping should they be outside of their hole. My patience was wellnigh exhausted in waiting to get a couple of rats out together, but, becoming bolder, they at length ventured out, when in an instant the board fell, and escape was impossible. Finding their retreat cut off, they rushed round the aviary in wild excitement. This attracted the attention of the eagle, who flew down from his perch to make a quarry. As he could not follow the rats into the corners, they had for a time the advantage of him, but in a clumsy waddle he followed in pursuit, and gained ground by cutting off the corners. Getting tired, the larger rat took refuge in a corner and showed fight. With that ferocity peculiar to rats, he squeaked loudly and charged the approaching eagle, bounding straight for the head. With a dexterity I have never seen equalled, the eagle's foot went out, and, quick as the eye can wink, the rat was caught in mid-air, and in an instant his bones were cracking under the terrible grasp. In a hopping fashion he pursued the other till he secured it also, and had one in each talon. After the usual time for killing had elapsed, both were torn to pieces and devoured.

It has been affirmed that snakes charm their victims, and Dr Livingstone stated he felt no pain when in the jaws of a lion. I am also of opinion that the prey of eagles become somewhat hypnotised when seized by the talons. My fox-terrier, Vesta, one of the gamest of her kind, followed me on one occasion into the aviary, when, quick as lightning, the eagle seized her by the head. She immediately turned on her side, and never uttered a sound or made a struggle to escape. Getting a stick, I belaboured the savage bird on the head till he re-

linquished his grasp. As I have said, a "gamer" terrier never lived, and, with the exception of the eagle, I never saw her turn tail to anything.

A peculiarity of the eagle is the way in which he can turn his head, so that no one could discover it is not in its natural position. Often he sits for a long time on his perch with his back towards the door and looking straight at any one outside. Strangers unaware of this habit can hardly be brought to believe that it is not the natural position of the head. What I regard as the most beautiful feature in the eagle is the sharp, bright, piercing lustre in his eyes. Strange as it may appear, he can gaze at the most brilliant sunshine without wincing. When a dog appears in sight, it is interesting to note the fierce scowl that concentrates in his eyes, and the flashing light that scintillates from them. The golden hackles of his neck stand out, giving him a fierce appearance, and making him look much larger than his natural size.

As has already been said, proprietors stepped in for the purpose of preventing the extermination of eagles, and would only agree to their destruction when it was proved that they were committing havoc among the flocks of their tenants. Many proprietors suffer considerable pecuniary loss by the ravages of these birds among grouse, which, as is well known, fetch, in calculating the rent, a pound a brace, and in many cases command a greater rent than is got for the grazing of the sheep. In point of fact, there are moors in Scotland which realise more than double the rent for grouse than they do for sheep-grazing. Heather requires much the same treatment for sheep as for grouse, though it is sometimes difficult to convince a grazier or a shepherd that ten acres burned in one place and one acre in ten places is of no moment as regards sheep, but another and very different thing for grouse.

There are a certain class of naturalists who affirm that eagles do practically no harm to grouse, as their staple food is mountain hares and rabbits, which can only be regarded as vermin. To such I would recommend that they add to their studies 'The Home Life of the Golden Eagle,' by H. B. MacPherson, published by Witherby & Co., 326 High Holborn, London. This author, with the aid of his camera, gives us more information regarding the habits of eagles in their native wilds than all other writers on the subject put together. It was in Giack forest, a breeding-place of the eagle, where it is strictly protected by both proprietor and shooting-tenant, that Mr MacPherson made his

observations. With considerable difficulty a dangerous ledge containing the eyrie was reached. Here were found two eggs, one of them much darker in colour than the other, of which a photograph was taken. Returning a week later, he found two little downy eaglets, so he made a hiding-place among some stones for the camera, with nothing but the lens exposed, and an extemporised hiding-place for himself. From the time the eggs were hatched till the young bird took wing and left the nest was eleven weeks. The other one disappeared from the eyrie, and its fate remains a mystery. Probably it had died, and been removed by the parent birds.

Despite a great deal of inclement weather, Mr MacPherson spent many weary hours, with the result that numerous plates were exposed, and thirty-two photographs from life, chiefly when one or other of the parent birds, and once when both were present, adorn his book. Though hares and rabbits were brought to the eyrie, neither were included in the eaglet's bill of fare until it was able to tear the flesh for itself, though occasionally the parents gave it a tit-bit of the liver. The number of grouse brought to the eyrie was appalling, and in the babyhood of eaglets it is either the father or the mother of a brood that becomes a victim, so that pairs are broken up.

Mr MacPherson's description of the habits of the eaglet and the parent birds is intensely interesting. How the mother brought food and settled away from the youngster, flapping her wings repeatedly as if to give him a flying lesson. Practising using his wings, he kept flapping them several times a day, no doubt guided by natural instinct to develop and strengthen the muscles. The way she encouraged with a bit of flesh to follow her over a barrier of rock was evidently with the view of teaching him to use both legs and wings. It was obvious he would soon take his departure, and for the last time Mr MacPherson, in a downpour of rain, crept into his hiding-place and saw the eaglet leave the eyrie where for eleven weeks he had been faithfully tended by his parents. Not only had they kept him liberally supplied with food, but they carried off remains and fouled sticks as well as his castings from the eyrie. Fresh sticks and heather were also brought to replenish the nest. The last scene had better be described in Mr MacPherson's own words. He says:—

The hours passed slowly, and the eaglet stood beneath the ledge which had sheltered him from so many storms throughout the summer months. At length

he stepped forward to the edge of the cliff and gazed intently upwards, at the same time uttering the low cheeping note with which he had always greeted his parents' return. It was little harsher, though a trifle louder, than the cry with which as a babe in white down he had hailed their coming, and the small voice proceeding from so large a bird seemed now somewhat incongruous. Then suddenly a dark form flashed up the corrie, and his mother swung past on silent wings. She circled round and round as though annoyed at finding him still in the nest, then settled on the rocks beyond and tried to tempt him from his fastness. But the eaglet was unwilling to obey, for his hunger had been appeased, and still the rain pattered down pitilessly outside the eyrie. She rose once more into the air and flew towards him, almost buffeting him with her wings as she swooped past the nest. Again and again she hovered round, and then a wild weird cry rang echoing down the glen. For the first time I had heard the yelp of the adult eagle, the voice of the Queen of Birds calling to her young. Thrice was the note repeated, then again silence reigned for a while. The eaglet cheeped continuously till, as though seized by some irresistible impulse, he flapped to the very edge of the abyss and turned his head from side to side, listening to her call. And now he too changed his cry, his voice seemed to break, and the adult yelp, though in a lower and feebler key, burst from his throat. The eagles called to each other, yelp answered yelp as they held strange converse in this wild mountain solitude. The young eagle gazed around him as though taking a last farewell of his birthplace, spread out his giant wings, and vanished for ever from my sight among the ledges below. And the yelping ceased, and again there was silence.

The eaglet had left the nest and had flown. He had spent eleven weeks in the eyrie, and now entered on a new stage of his career, through which I could not follow him. No longer could the camera record his adventures or pursue him in his wanderings. There are scenes in his life-story which no mortal eye shall witness, and secrets of which the key lies perchance in a few shrivelled bones on some rocky ledge.

Grouse live in mortal terror of eagles. I have seen a hand-reared grouse find a mate and breed a short distance from the kennel at Tullimet, in Perthshire. Going near his sitting mate, he flew at us like a game-cock, striking with feet, wings, and beak to frighten us away. Every few seconds, however, he cautiously turned his head and scanned the horizon according to hereditary habit. One day an eagle was seen flying in aerial circles over the summit of the mountain, and though miles away, the bird flew home to the kennels in a state of terror.

I have seen grouse, on the approach of an eagle, dash off in such numbers that it would not have been believed so many existed within the radius of vision. Rising high in the air and travelling at great speed, they crossed a mountain-range and were lost in the distance. It is not altogether a welcome spectacle for a gentleman who pays £1500 or

£2000 for a moor, besides high collateral expenses, to see a day's driving absolutely ruined by an eagle appearing on the scene. This I have several times observed. I have also on different occasions when stalking seen immense numbers of grouse flying at a great rate before the eagle. Strange as it may appear, in my peregrinations among the mountains I have never seen an eagle succeed in killing a grouse, though I have often observed their remains in eyries. Successful captures of hares and rabbits I have often witnessed, and once in Strathglass an eagle rose from some bracken with a rabbit in each talon.

In view, therefore, of so much damage to game being done by eagles, and keeping in mind the patriotism displayed by our Highland proprietors in preserving them, why should the care of these birds not be left in their hands? For the last forty years and more to my knowledge they have been protected, and gamekeepers were instructed to watch the eyries in order that they should not be interfered with or the eggs surreptitiously removed by fanatical egg collectors. Not only so, but the preservation of eagles is carefully inserted in their shooting leases. I therefore ask in all seriousness, why should the legislature interfere? Landlords as a rule know a great deal about rural affairs and natural history lore of which many county councillors are entirely ignorant. At a meeting of the Mid-Lothian County Council, when birds were being scheduled for protection, mention was made of the raven. One of the councillors, a farmer, then asked, "Are ravens craws?" He evidently had no interest in bird life beyond his own pocket, and doubtless had ravens devoured his grain, their protection would have been objected to.

Eagles have been known to attack foxes, cats, deer, and other animals. While crossing the mountains from Strathconan forest to Struy, in Strathglass, the keeper who accompanied me had a brown-coloured terrier which was sometimes considerably in advance. An eagle swooped down on it. Evidently aware of its danger, the dog ran howling towards us with its tail between its legs, and but for our being near would certainly have been carried off.

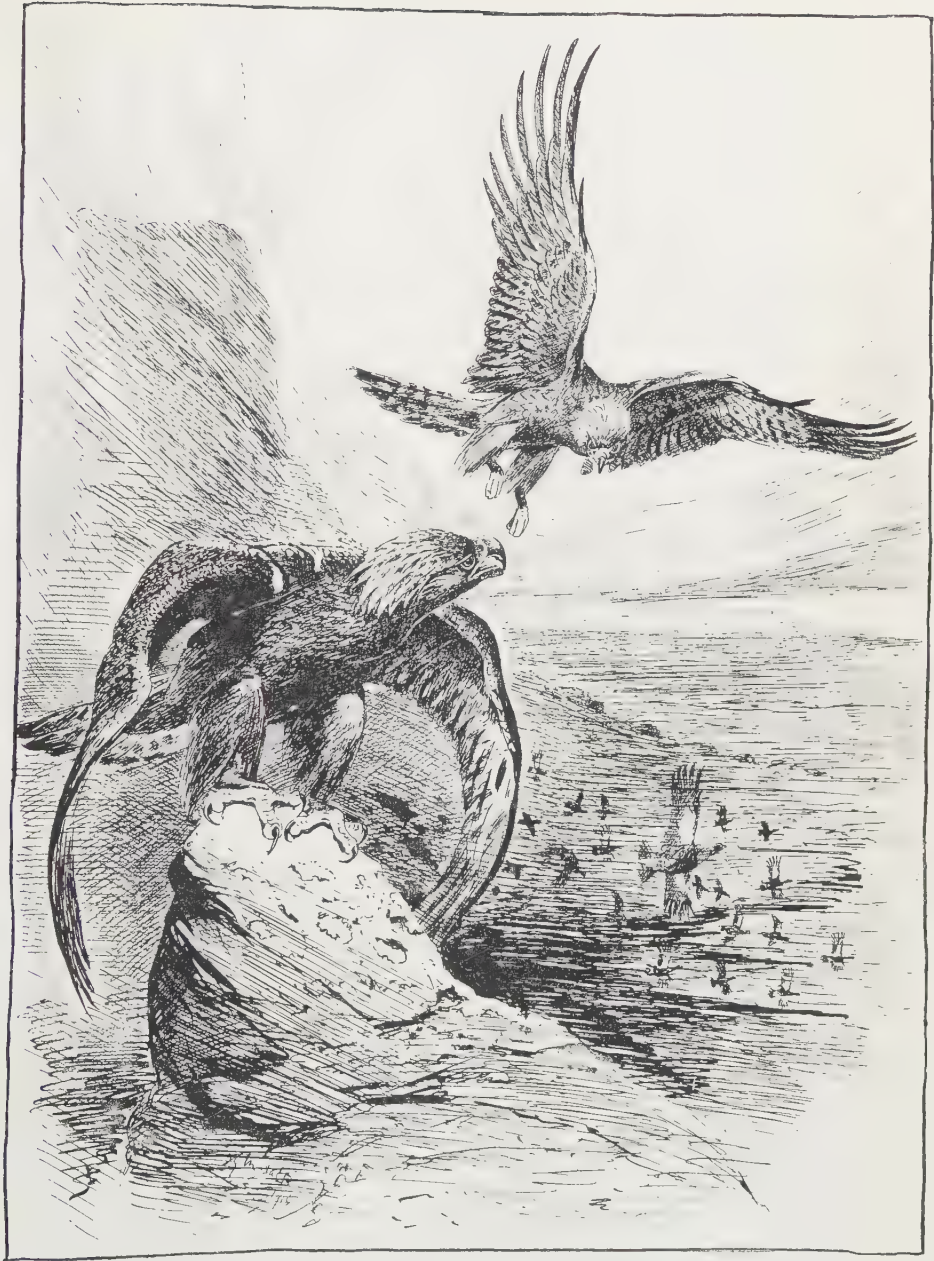
The keeper at Wemyss Castle, in Fife, had an eagle in confinement which was caught in Giach forest. Some time after he got a large fox from the same district, and not having a suitable place to put it in, placed it beside the eagle, which had a house and large yard covered with net-wire. The following morning he found the eagle had killed the fox and had a large portion of it devoured.

Eagles, it is said, live to a great age, but trustworthy statistics of their longevity are difficult to acquire, though many statements bearing on the subject have been put on record. I can authoritatively vouch for the fact that an eagle died in the Zoological Gardens, in London, after having been in their collection for twenty-five years. It would be a mistake, however, to rest any theory upon such a case as this, seeing the removal of birds or animals out of their natural conditions and placing them in captivity is most unfavourable to a prolonged existence.

In my schoolboy days I often wondered how Samson caught the 300 foxes he turned away among the corn of the Philistines, when it took the Earl of Wemyss's hounds a whole day to catch one. A verse of a familiar Psalm also supplied me with a poser :—

“ Who with abundance of good things
Doth satisfy thy mouth ;
So that, ev'n as the eagle's age,
Renewed is thy youth.”

I could not understand how eagles renewed their youth. After growing up to manhood, and having personally collected hundreds of foxes in Scotland, I imagined that Samson would have little difficulty in Palestine, as at that time the balance of nature was probably undisturbed. Eagles renewing their youth, however, was a more difficult problem. There was nothing to guide me to a solution. Having noted many of their habits and finding a difficulty in catering for them, I entrusted my Strathconan pet to the care of that well-known naturalist, the late Mr Archie Steel of Kelso, with a request he would advise me of any change in its appearance or in its habits. He kept it in an aviary in his garden near the Tweed, and on one occasion when fishing the stream below Kelso bridge the soft “coo, coo—ooo” of the wood-pigeon, the quickly repeated “coo-oo-oo” of the stock-dove, and the screaming of an eagle delighted my ears. It is certainly not often that such a medley of sounds is heard in the vale of Tweed. An amusing incident took place on the occasion of an excursion from Newcastle and intermediate stations. A number of miners were visiting the eagle as one of the sights of Kelso. One of them who had been indulging rather freely, in a strong Northumbrian dialect stated he would like that “burrid.”



Eagles Hunting.

Mr Steel said he would give him it if he would go into the aviary and take it. Being in that condition when

“ Wi’ tippenny, we fear nae evil;
Wi’ usquabae we’ll face the deevil,”

he went in and attempted to take hold of it. The savage bird, knowing him strange, at once set itself in an attitude of defence, and quickly seized him by the thigh with its talon, fortunately catching the cloth only, and before they could be separated much tailoring was necessary ere he could appear decently on the street. Nothing would induce him to go in beside that “burrid” again.

The last time I saw the eagle it was in beautiful plumage, and I remarked it was surely “renewing its youth.” I never saw either Mr Steel or the royal bird again. Mr Steel contracted a chill which, alas! had a fatal termination, and the eagle is now also blended with the elements. A hare which had been shot by an inexperienced sportsman, and which contained practically the entire charge of shot, being useless for cooking, was thrown in beside the eagle. The bird was looking as youthful as ever, and quickly gorged itself on the hare. The following day it was dead. A gentleman competent to express an opinion stated that he thought it had died from lead poisoning. This I can believe, as I have known both pheasants and poultry succumb, when I found pellets of shot in their gizzards, no doubt picked up—as is their habit of swallowing small stones—to assimilate their food. The eagle was much missed from the garden, though it seemed lonely there. Proud bird of the mountain, it was in an anomalous position as contrasted with the Ross-shire hills, but with its kingly glance it retained all its native dignity. It was in 1885 that the eagle was sent to me, so that it had lived 33½ years; but except that it retained its beautiful plumage to the end, I was no “forrarder.” How long the bird would have lived had it been left in the eyrie must ever be a matter of speculation. I have heard that the eagle and the swan live a hundred years, but it is practically impossible to check such a statement. An eagle in captivity and a swan on a loch are not running a fair race. I can remember as a boy seeing a swan stuffed by the late Mr Belloe, taxidermist, Coldstream, which, for being a tyrant among others, was shot on the Hirsell Loch. The bird was always designated “the young one,” though 40 years old. As will

be seen, I got no "forrarder" in regard to the longevity of eagles, or how they renew their youth.

During winter, when the hills are covered with snow, eagles have difficulty in procuring their food. This difficulty is aggravated in consequence of the mountain-hare and ptarmigan being, by a wise provision of nature, transformed into the colour of the snow, and thus rendered more difficult of detection even to the eagle's eye than they would otherwise be. In those mountain regions, where for miles upon miles a black speck is not discoverable after some of those terrible snow-storms, eagles suffer more than most birds. In their extremity they have been known to attack deer. They have been seen during protracted storms hovering above a herd of deer, the effect of which seems invariably to drive the frightened animals into a compact mass, as if each one was afraid of being marked out as the victim to be assailed. I once witnessed an incident of this description. While on a visit to the forester in Glenbruar, we observed three eagles flying along the ridge of the mountain. Two lots of deer which were lying on the face seemed greatly alarmed, each lot running together in the manner I have indicated. One of the lots of deer and two of the eagles disappeared over the skyline. The other bird remained circling above the deer which remained full in sight, and latterly with lightning speed made a dash down upon the affrighted herd, consisting of about thirty hinds and calves, fixing his talons in the neck of one of the largest of the hinds, which chanced to be on the outside of the group. The hind thus attacked left the herd and ran round in circular form, the eagle all the while flapping his heavy wings upon the head of the terror-stricken animal. Eventually it succeeded in shaking off its assailant and made its way towards the others, which by this time were pushing round the ridge of the hill. Ere it had reached the herd and just as it was passing from my view, the eagle made another dash at its victim and appeared resolute in its purpose. Unfortunately the soft snow was lying a considerable depth, and as the ascent of the mountain was very precipitous, I was unable to follow in pursuit, and thus see the end of one of the most remarkable incidents which I have been privileged to witness in the interesting study of natural history.

While my friend Peter Gow, the head stalker in Inverlochry Forest, was going his rounds looking for foxes in the month of June, on reaching the top of Ben-a-Bhan he observed two eagles passing overhead to the

west towards Ben Nevis. Being under the impression that there was an eyrie in the Larig Pass, he sat down and watched the birds through his telescope. When about a mile from where he was, both birds began to hover over a small herd of deer, mostly hinds and calves with a few small stirks. Suddenly one of the eagles came down with a swoop on one of the hinds, almost touching it, but passed on. The deer got frightened and went over the skyline out of sight. Then it was observed that a hind and a small calf were left behind, and both birds attacked it, swooping down and trying to drive the hind away from its offspring. Several times during the attack the hind reared up and struck out with her forefeet in the manner that hinds are often seen when playfully sparring. Both birds attacked in quick succession until the calf got separated from its mother. One of the eagles then seized it and disappeared with it over the brow of the hill. The other kept up the attack on the hind for some time, and then rose and flapped away in the same direction. The hind also trotted on to where she had last seen her calf, but the eagle by that time with its prey was well away to the eyrie.

Some years ago I witnessed an eagle attacking a calf, but the mother, attracted by its cries, ran to the rescue and immediately drove it off. Fawns newly calved, lambs, hares, rabbits, grouse, ptarmigan, and stricken deer which escape from the sportsman but afterwards die, constitute the staple food of this magnificent bird. Besides the number of grouse killed, the circumstance of the eagles flying backwards and forwards with food to their young keeps grouse in constant terror, as they regard the presence of the eagle to be incompatible with their security.

On one occasion, when hind-shooting in company with Campbell, the keeper, and when climbing the west end of Cruchan Mountain in Ross-shire, our attention was attracted by two eagles behaving in a peculiar and excitable manner. Sitting down, and with the aid of our glasses, we discovered the object of their fury and excitement. These savage birds had espied a fox on the open green slope of the mountain-side, where there was no cover of any sort, but was doing his best to reach a place of concealment. Unfortunately for him a third eagle joined in the fray, and the fight grew fast and furious. Reynard had to fight for his life, and he did this by snapping at them, running when he could, and at times squatting on the ground. He was, however, quickly roused to activity by a daring swoop by the

savage birds almost striking him with their wings. They were evidently aware of his dangerous jaws, and were intent on harassing him till an opportunity presented itself when they could clutch him with their talons. He would at times make off as fast as he could, but only to be pulled up again in a daring swoop by one and sometimes two of the eagles. He now got into a hollow in the ground, where we could not see him, but the powerful birds kept swooping over him, and it appeared as if they could not strike to the same advantage as on the level. Two of the eagles now settled on the ground close together, their golden hackles standing erect, which made them resemble two old wives hobnobbing, with shawls over their heads. The third bird kept on the wing, making an occasional swoop over the fox, but evidently to no purpose, as he did not seem to move, and it also sat down. We were on the point of leaving, when we again saw two of the eagles actively on the move.

The fox had thought the coast was clear, and made rapidly for a cairn of stones some distance off. It appeared as if the royal birds were aware of this, as they were now more daring than ever, and did not want to be done out of their dinner. They swooped continually, sometimes knocking him aside and over. His springs and snaps at them were much less frequent, but every chance he tried to make for the cairn. His next and most feeble move was over the ridge and out of our sight, but we could plainly see he was about giving up. For a few minutes we could see the eagles rise above the ridge and swoop down again, doubtless still harassing their victim, and when they finally disappeared we concluded the doom of Reynard was sealed. It was indeed a wild, a wonderful, and a most unusual sight. I should like to have gone to the ridge and seen the last of this interesting observation in natural history, but the day was closing, and the distance uphill too great. Anxious to know the fate of Reynard, and impelled by curiosity, we ascended to the place the following morning, and found patches of fur along where the fight took place. Farther on over the ridge, with the aid of a retriever, we discovered the entrails of the fox, which was proof positive that they had killed and devoured him, and carried off what was left of his remains.

During the stalking season the keeper informed me, when out with his employer and two gillies, they came on the skin of a fox inside out, characteristic of the habits of eagles. This I discovered when keeping

them as pets. On one occasion I had traps set in the woods for rabbits, and found one morning a large Persian cat secured. Destroying it, I gave it to my eagles. An old lady in Craigmillar Park who had lost hers, and having heard that these birds devoured cats, made a pilgrimage to the aviary, but fortunately the skin was turned outside in, and she could not recognise it as hers.

THE PEREGRINE FALCON (*Falco peregrinus*), though not the largest, is the noblest of our birds of prey. He is the most destructive of the hawk tribe. The eagle will occasionally feed upon carrion, but as far as my experience goes, the peregrine never does. He is a merciless tyrant, striking down victims from mere wantonness. He almost invariably strikes in the air, frequently decapitating his victim. Endless discussion has taken place between falconers and naturalists on the one hand, and sportsmen and keepers on the other, as to whether falcons should be preserved or killed down in the interest of game preservation. While no advocate of the extermination of our rarer birds, I am forced to the conclusion, from personal observation of the headless victims destroyed by peregrines, the number of grouse I have seen carried to the young, and the profuse remains of grouse and other birds around their eyries, that they destroy immense quantities of game. It is surprising how seldom these birds are seen, even in places known to be frequented by them, unless watched for at the nest. At the same time they are by no means so scarce as many people believe. There are at least three eyries between Dunbar and Berwick, the rocky coast affording a congenial nesting-place. I have known them in Berwickshire, when catering for their nestlings, visit the rearing-field and carry off pheasants when three-quarters grown. Many deer-forests contain one or more eyries, and few stalkers care to molest them. A pair have bred annually for the last fifty years, and perhaps for centuries, in Craig-a-glastol, a stupendous precipice overlooking the river Orrin in Strathconan Forest. The eyrie commands a view of Glen Orrin, which is about half a mile in width; and when a duck, curlew, heron, or other bird flies up or down the glen, the hawk is on him like a thunderbolt and his doom is sealed. While on the river-side with the stalker we observed a mallard flying up the glen, and watched with interest the result. As it got past the eyrie we were about to think it had escaped the notice of the peregrine; but in an instant, as with

lightning speed, it was upon its prey, striking it to the ground and flying down on the top of it. We ran forward, hallooing, when the hawk flew off, and to our surprise the duck got up and also flew away, apparently unscathed.



Golden-eye Drake killed by Falcon.

The peregrine is a bold and pitiless marauder, and Highland lairds will never know what rental their estates will produce as long as this merciless tyrant among grouse-life is allowed to harbour. Much discussion has from time to time taken place in the columns of sporting

and other newspapers, between falconers, naturalists, sportsmen, and keepers, as to how a falcon strikes its prey. Like most discussions of a similar nature, they generally ended where they began. At what period hawking was first practised is involved in much obscurity. Strutt traces it back to the fourth century. In the 'Encyclopædia of Rural Sports' by Blaine, published in 1840, it is stated: "We may add that the authentic sources of information are still fewer than the writers, as it was in early as well as in later times the fashion to borrow, redress, and exhibit as new the information of times long past." It is further stated that "the rust of time has thrown a veil over its olden practices, and in the records which should have described them fable often takes the place of fact." Much of what was written in the discussions referred to was simply copied from works on hawking and compiled by Blaine in his 'Encyclopædia of Rural Sports.' The imping-
→ of feathers, the instances where an eyas falcon has defeated a wild one in fair flight, the putting a heron with the point of its bill sawn off beside a falcon, and much more, were all faithfully reproduced. Not one of the writers, however, stated they had seen a wild falcon making a quarry. Their experiences of the habits of the bird were all derived from what they saw of their tame ones. Objection was taken to my calling them tame. "Tame falcons! Trained falcons are not tame," observed a writer in the 'Scotsman.' Again it was stated in regard to the peregrine—"He captures that bird, reclaims it, trains it, and within six or seven weeks has it flying at liberty and obedient to the whistle and the lure." Knowing the wild nature of the peregrine in its mountain solitudes, I in my innocence was of opinion that one "flying at liberty, obedient to the whistle and the lure," might safely be characterised as tame. But falconers say no!

How falcons kill their prey has, as already said, been the subject of much discussion. Falconers determinedly adhere to the theory that it is with their talons. Those who have seen birds killed in the air by wild hawks are well aware of the sudden death, which is certainly very different to the description of the way tame falcons "bind" to a heron when they "descend to the earth together, scratching and fighting like 'a bagful of cats.'"

A keeper friend of mine near Kingussie witnessed a grouse struck down by a peregrine, and as there was not a mark on it he sent it on to me. Carefully plucking it, I noted that with the exception of a

bruise along the spine there was no other mark on it; yet the blow had been sufficient to cause instant death. This comports with my own observations, and it is difficult to understand how this blow could be struck by these terrible talons at the terrific pace of a falcon's swoop without the skin being torn. As the heads of grouse are frequently cut clean off when struck by a peregrine, it is the opinion of foresters who have watched them with their glasses that it is done by the wing. Falconers deny this, and maintain it is with the hind talon. How, then, it may be asked, can this be done when there is not a scratch on the victim, but only a bruise indicating where the blow was struck? Young falcons, when they start to hunt for themselves, are known to "bind" to their victims; but they soon give this up and strike in the air, frequently, as already said, cutting the head off, which I have picked up several yards from the body, and at other times hanging by a bit of skin. It is argued that it is impossible the bird could be killed by a blow from a hawk's wing, as the wing would certainly be injured. I have seen a retriever stunned by a blow from the wing of a swan, and but for my being in close proximity in a boat it would certainly have been drowned. Those who have put their hand into the nest of a wood-pigeon are familiar with the blow even a half-fledged bird can give with its wing. I have been struck with the fight a wounded wild goose can put up, and the blows it can inflict on a retriever with its powerful wings. When a falcon strikes a bird in the air there is a loud "clap," which I have heard several hundred yards away. This would not be the case if struck by the talons. I can remember sitting at a deer-drive in the Feadan Aultulisg "pass" on Carnbane beat in Glenstrathfarrar, eagerly watching the approach of some deer, when I heard a loud "clap" in the air, and on looking up saw a blackcock falling from the peregrine. It fell plump down among some bracken three or four hundred yards distant, evidently quite dead, and the falcon pursued its course without taking the trouble to look after it. I was anxious to go and pick it up, but as a herd of deer were approaching this was out of the question.

In these days of advanced civilisation, when country after country is forming laws for the protection of our feathered friends, the wild birds, there were evidences of a growing feeling that the list on our statute-book was incomplete. As a result of this, county councils passed bills for the protection of many birds not included in previous Acts of Parliament. Since these enactments are intended to protect wild birds

chiefly if not wholly in the breeding season, a perusal of the list reveals an obvious want of knowledge regarding the habits of many of the birds referred to. Why such a destructive bird of prey as the peregrine falcon should be legally protected, as it is in some counties, is difficult to explain. Where a pair of these birds take up their abode in any given locality, game, young poultry, and pigeons disappear to an alarming extent. In the solitudes of deer-forests and rocky coasts they still hold their own, despite the efforts of gamekeepers to put them down. The reason for this is obvious, as they frequently nest in inaccessible places out of gunshot from both below and above. They are not attracted by any bait unless it should be their own quarry, and, to make matters worse, should a keeper succeed in shooting one off her eggs, the cock bird immediately starts in search of another mate, and hatching goes on as before. I have known of five peregrines being shot at one eyrie in a season at the Mull of Kintyre. There seems to be a registry for unpaired peregrines somewhere in Ireland, as, after having his mate shot off the nest, a male has been seen crossing with another the following day.

On the island of Hoy, an area of forty thousand acres, the eyries of six pairs of peregrines are found among the stupendous precipices which surround it. Sir Walter Scott states in 'The Pirate' that there were perhaps more grouse in the Orkney Islands than in any other part of the British dominions. On a tour of inspection of Hoy I saw no reason why a thousand brace of grouse should not be got, provided the tyrants of the air could be kept down. When crossing the moor on this island I was not long in discovering the work of the peregrine—a long trail of feathers, and sometimes a grouse lying minus the head, which had evidently been struck down from mere wantonness. In the crofter township of Rackwick, on this island, the peregrine frequently swoops down and carries off domestic chicks close to the cottages. If the cliffs of Hoy could be cleared of these tyrants among bird life no doubt grouse would increase there, as they have done in Kintyre and elsewhere, through the destruction of birds and beasts of prey, since the days when Sir Walter wrote 'The Pirate.'

In a recent ramble by a loch in Orkney I heard a whizz in the air, and just had time to turn my head to see a falcon strike a golden-eyed drake within thirty yards of me. So intent was the savage bird on his victim that he was unaware of my presence till after striking, when in an instant he shot like a rocket up into the sky, where, deeming himself

safe, he hovered for a time. The drake fell into the loch, when he immediately dived. In a few seconds he came to the surface, and then turned on his back quite dead. Waiting till he drifted ashore, I found the under part of his throat cut open, the windpipe severed, and all the arteries exposed and bleeding. As the golden-eye is strong and vigorous on the wing, it is easy to see how few birds have any chance of escape from this tyrant among them.

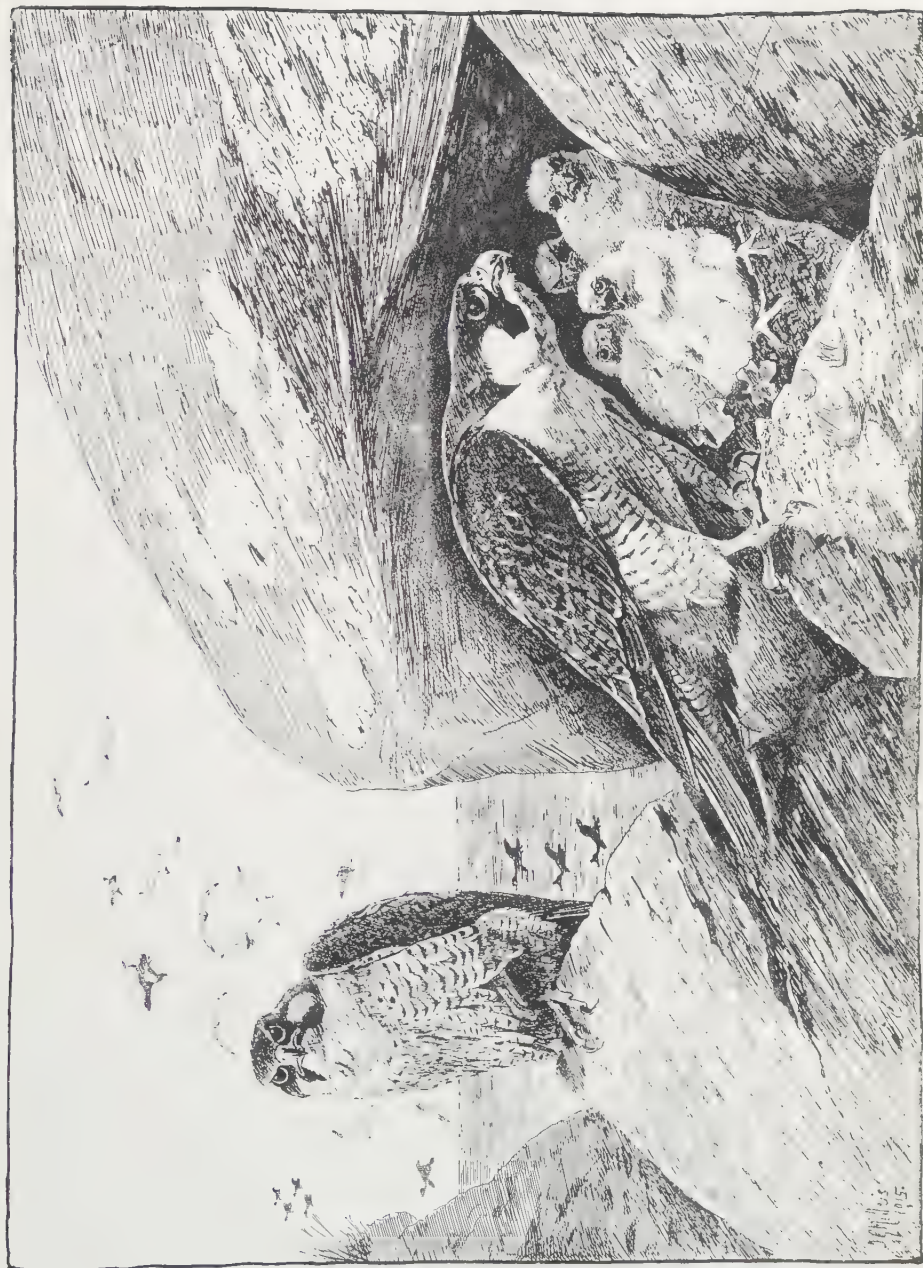
The peregrine, as already observed, is the most dashing of our birds of prey, and to see him making a quarry is a sight to be remembered. He is, however, a meaningless murderer, and few people have the slightest idea how destructive he is. As is well known, grouse indigenous to the British Islands realise a pound per brace on our Scottish moorlands, and shooting rents pay a large percentage of local taxes. The peregrine pays neither rates nor taxes, but it would be interesting to ascertain how many grouse a pair annually destroys. This will never be ascertained, as every grouse killed between February and June means the destruction of a covey; and I have seen peregrines, when catering for their young, bring five grouse to the eyrie in six hours. Grouse, black-game, curlews, duck, and plover constitute the staple food of peregrines on inland moors. But an eyrie was visited and photographed by some of my fellow-members of the Edinburgh Field Naturalists' Society on "an insignificant, unknown fragment in the far-flung archipelago of the Outer Hebrides, a dozen miles from a steamer port," where game-birds were, of course, out of the question. There puffins constituted the food supplies. Knowing from the screaming of a pair of these hawks, "in a storm of fury" overhead, that they were near the eyrie, they sought for it, and soon observed "the litter of bones and feathers—a perfect holocaust of puffins."

Since game preservation has become so common in Scotland, the peregrine falcon has been justly persecuted; yet he holds his own despite every effort to destroy him. It is only in the solitude of deer-forests, where grouse are not wanted, that he is allowed to harbour. Incredible as it may appear, it is nevertheless a fact that a pair of these birds, if allowed to rear their young on an inland grouse moor, will soon immensely reduce its value. For some time before nesting they generally take up their abode on a rock selected for their eyrie, and it is not too much to say that a brace of birds daily fall victims to their destructive habits. When the young are hatched, more are necessarily required for the

nestlings. To make matters worse, they may be called purposeless murderers, as already said, shedding blood from mere wantonness.

It is surprising how seldom the peregrine is seen on the wing unless watched for at the nest. Its usual method of procuring its prey is to sit on an elevated position on a rock, and wait till a grouse, blackcock, duck, curlew, or heron flies past, when, like a thunderbolt from the sky, it swoops down and frequently, in the act of striking, decapitates its victim. A few years ago a gentleman in Peeblesshire wrote asking if I would give an explanation of his shepherd picking up grouse minus the head. Knowing the habits of the peregrine, I at once suspected this bird, and suggested that a watch be kept on any hawk that might be seen in the district. A few days afterwards a shepherd reported that a pair of long-winged hawks had been "mobbing his dogs," which proved the correctness of my surmise. The eyrie was found, and the young destroyed in it by rifle bullets, but the old birds escaped. Much mischief was, however, done. If, therefore, a gentleman rents a grouse moor near which a pair of peregrines take up their abode in early spring, they will, if unmolested, reduce his bag in August very perceptibly. No doubt they kill other birds, but on an inland grouse moor, judging from remains which I have found at their nests, I confidently affirm that more than three-fourths of their food are grouse and blackgame. It is most interesting to watch a brood of falcons after leaving the nest, just a little before the period when they are able to cater for themselves. Sitting about on the rock where they have been reared, they watch the parent birds returning with food for them. Flying out to meet them, they snatch the prey in mid-air, and return to devour it on the rock while the old birds go off to hunt for more.

As many Highland proprietors protect the falcon in those wildernesses now afforested, and as most of the hawk tribe are migratory, there is no fear of their becoming extinct. I have spent days in such mountain solitudes as at Inveraray, Strathconan, Dalnaspidal, and elsewhere, watching the habits of the peregrine at nesting-time, and have since arrived at the conclusion that their presence should not be tolerated on or near a grouse moor. I have even seen a grouse, pursued by a peregrine, fly and settle in the heather within gunshot of a friend and myself. When shooting in the island of Hoy, on going up to the pointer, a covey of grouse started, out of which I dropped a brace. When little over a hundred yards distant the entire brood dropped in



The Peregrine's Eyrie.

the heather as if shot. For a few seconds I could not understand why they should have done so, till a large hawk appeared and hovered over them. By this time I had fresh cartridges inserted, and holding above him I fired both barrels. Being far out of range, the shot, of course, took no effect, but the pellets would whistle around him, and he quickly winged his way out of sight.

In the island of Mull both peregrines and buzzards breed year after year, and I have accompanied the keeper there in searching for the nests of these predatory birds. So little is the peregrine seen, except when watched for at the nest, that on one occasion we had no suspicion of any eyrie being among some rocks near the coast and the public road. At the same time, with the view of removing any doubt, we started to make a diligent search. Repairing to the foot of the rock, a shot was fired, but nothing was to be seen. Turning and firing up the face of the precipice in the opposite direction, out flew the object of our search—a peregrine falcon. We returned the following day, and getting below near the shore, we again had her startled from the eyrie, thinking she could be got as she flew out. In this, however, we were mistaken, as she was much higher than we supposed, and a couple of shots took no effect. We returned in the afternoon with a rope and traps, and adopted different tactics. An under-keeper—a young lad—was let over with the rope to try and find the eyrie. He could not at first set his eyes on it, and he was let over four times before he found it. The rock was not altogether perpendicular, and with the aid of the rope it was not a difficult feat to go over. On lowering him for the fourth time, he got on to a ledge of rock, and, peering round a projecting point, discovered four young birds in their dress of down, but with the brown feathers beginning to show. Observing four grouse, one pewit, one golden plover, six thrushes, and three ring-ousels, besides a profusion of remains in all stages of decomposition, lying around, he very sensibly put three of the young peregrines in his pockets and shouted to be pulled up. He explained the situation thoroughly, remarking that it was clear the parent birds carried more victims to the eyrie than was necessary for the feeding of the young, but with only one to cater for the old birds might not be so destructive. He further stated that if one of the old birds was to fly in to the eyrie, he thought he could go silently over on to the ledge with a gun, and possibly get a shot. We accordingly went some distance off

and concealed ourselves till we saw one of the parent birds fly in. Repairing to the spot, the young lad divested himself of his boots, in order not to make a noise in his descent. With the gun in one hand, and with the other keeping himself off the rock and assisting his descent, we let him gently down. On reaching the ledge he silently cocked the gun, and, peering cautiously round the projecting rock, saw the tail of the old bird, its head being in towards the young one, probably feeding it. With the gun at his shoulder, he leaned farther round till he was certain part of the body would be caught by the shot, when he pressed the trigger. The victim fluttered backwards over the precipice, where we afterwards found it dead. The young bird was then tethered in the eyrie as far back as possible, and three traps were planted with a bit of stick between them, to make certain that the parent bird must necessarily go over one of them to reach the young one. Within an hour the hen was secured, the one that was shot being the cock. The young birds were taken home and placed in a cavity at the root of a tree, where they lived and thrived splendidly. Despite the wild nature of these birds, they seemed at once to become reconciled to their somewhat anomalous position, took food readily from the hand, and, like *Oliver Twist*, in their own language "asked for more." They were fed on rabbits, and the four soon required an adult one for a meal. When hungry they in a short time ran cheeping to meet any one approaching, using both feet and wings to propel themselves forward. I was surprised to see them become so tame, and was much interested to hear them cheeping for food. There were two cocks and two hens, the latter being easily known from their larger size and their bright yellow feet. The colour of the feet of the cocks is much lighter, more of a flesh colour. When any one attempted to tease or annoy them, they emitted a sort of discordant and gurgling sound, very different from their plaintive cheep when asking for food. It was amusing to observe their habits when unaware they were being watched. No doubt prompted by nature, they very often kept flapping their wings, which would have the effect of developing the muscles. They are beautiful birds, and can now be seen at our Scottish Zoological Gardens.

A day or two after we wended our way towards a sheet of water, where we observed a peregrine fly along the mountain-side and alight on a tree at a considerable elevation above the loch. From the nature of

the ground we thought it possible it might be stalked, and the young keeper was despatched on this mission. We sat earnestly watching the bird, expecting every moment to hear a shot. The stalk, we subsequently learned, was more difficult than it appeared, and before the keeper got near the hawk took wing. From where we sat its leaving the tree was easily explained. A flock of about a score of ducks had risen from the loch, and this had caught the eye of the peregrine, as he dashed off, evidently intent on making a quarry. To see the way the ducks scattered was a sight to be remembered, but selecting one, like a flash of lightning he swooped and struck his unfortunate victim, which fell headlong as if killed by a shot from a gun. How he struck is a much-disputed point, but we distinctly heard the clap several hundred yards distant. As the duck dropped perpendicularly towards the water, the hawk made another swoop with the view of clutching it, but in this he was disappointed, and on the duck reaching the water it instantly dived. The peregrine hovered above for a few seconds, then flew off for his dinner elsewhere. The duck shortly after appeared on the surface, and it was amusing to see it sitting up on the water shaking its wings after its miraculous escape. I expected the duck to come to the surface dead, like the golden-eyed drake already referred to.

The BUZZARD, though larger than the peregrine, is not so destructive. It feeds to a large extent on carrion, and consequently is easily trapped at a bait. It generally nests in a rock, though instances are recorded of it breeding on the ground at the edge of a ravine. It makes a larger and better nest than the peregrine, it being composed of burnt heather, cast hair of deer, tufts of rabbit's fur, wool, &c. The clutches of eggs vary from two to five. It is somewhat strange how a pair of buzzards will come year after year to nest in the same rock, even though annually destroyed. For thirty years a pair have nested in a rock in Mull, and in all that time not one single bird was allowed to escape the vigilance of the keeper, and still they come. To human eyes the rock does not seem a better nesting-place than many others, but whether it is a nesting-place congenial to buzzards' eyes, or whether their ancestors have nested there and it is in accordance with the law of heredity, we can only speculate. By close attention to what they carry to their young and what is found in their crop and gizzard for the last twenty years, I am forced to the conclusion that their presence cannot be tolerated on a

grouse moor. The quantity of game brought to the nestlings is appalling. Young hares, young rabbits, grouse—which are supposed to be snatched from the nest, as the buzzard, as far as my experience goes, is never seen to make a quarry in the air—large numbers of young grouse, young blackgame, moles, blind-worms, beetles, and, what surprised me much, an adder nineteen inches long, was brought to the eyrie referred



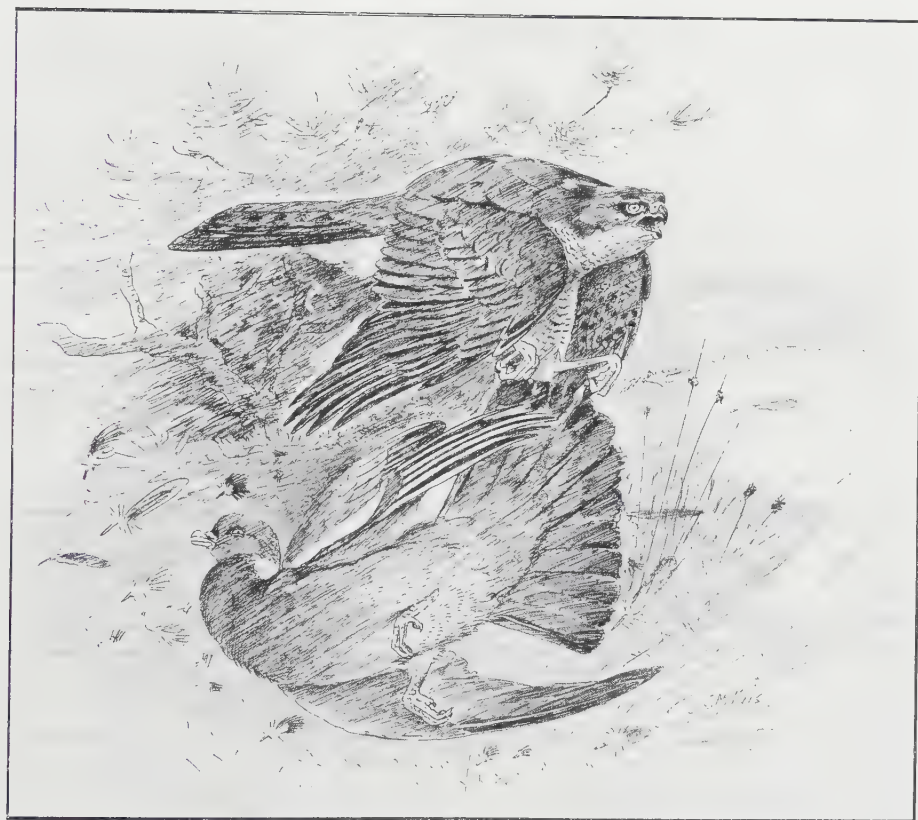
The Common Buzzard.

to. Whether instinct warned the bird of the dangerous character of this reptile will never of course be known. I could not, however, help thinking that such must be the case, as I noted that the only wound on the serpent was at the back of the head.

When on a natural-history expedition in the island of Mull, I accompanied the keeper to a number of breeding haunts of winged vermin.

On a rock was a brood of four buzzards with the parent birds. They had nested elsewhere, and as they were now able to fly a little, had been guided to the place in question by the old birds. Though the parents gave us a wide berth, the young birds, being more unsophisticated, were stalked and two of them shot. After a deal of chasing we managed to capture the other two without shooting them. As there was a steep bank at the place, we rolled two big stones, making a conduit between the stones and the bank. We then tethered the two birds in the centre and roofed the conduit with other stones. Planting a trap at each end, we left for the night, being well aware that at daybreak parents and youngsters would hold strange converse. Nor were we wrong, for on going early to the spot we found the hen secured, and noted she had carried thither a young pheasant beginning to show the cock feathers. The other trap was sprung with a young blackgame secured in it. It appeared as if the hawk had settled on the trap with the bird in its talons and escaped itself. Resetting the trap, we walked some distance away and watched with our glasses. We soon saw the cock fly in, carrying something, but were unable to make out what it was. Wending our way to the spot, we found the cock trapped, with a young grouse beside it, which it had carried to the youngsters.

Every gamekeeper of experience is familiar with the habits of the SPARROW-HAWK. It is the most destructive bird of prey found in the low country. The daring and impudence of this bird none but those who have been eye-witnesses can credit. Certainly there is no bird of the hawk tribe more daring and spirited than the one in question. It sometimes knocks down its victim like a peregrine, and at other times skims along and clutches it in the air. It also lifts it from the ground, but excepting young pheasants in the rearing-field I have never seen one do this. I have, however, known cases where pheasants were being hand-reared, and where this little impudent thief had succeeded in carrying off over twenty young birds before it was shot, despite the fact of the keeper continually watching, gun in hand. On one occasion, when in charge of the rearing-field, a sparrow-hawk, with the rapidity of lightning, dashed in and, clutching its unsuspecting prey, was making off when, warned by the screaming of the hens in the coops, I wheeled round and fired. It was out of shot, but had evidently got a fright, as it dropped its prey, which quickly hid in the grass. On going to the spot,



Wood-pigeon struck down by Sparrow-hawk.

I found it squatted and so scared that it allowed me to lift it. It was none the worse, and grew up to adult size, being easily known from a few white feathers on its back. A day or two after *Accipiter fringillarius* paid another visit to the field and again carried off a chick. Again I fired, this time with more success, as the hawk fell with a broken wing. On going up I quickly despatched it, but this time found the pheasant chick dead. Skinning it, I discovered that it was not struck by shot, but one of the talons of its murderer had penetrated to the heart.

To illustrate the dashing bravery of this little hawk, I may mention that on another occasion, on firing at one carrying off a young pheasant from the rearing-field, he dropped his victim and flew off hanging a leg. Concluding that he was badly wounded, I thought there would be no chance of his returning. Imagine my surprise on seeing him again dash in amongst the coops on the following day, but being within range, I fired, and he dropped to shot. I found his leg broken immediately above the knee, the result of the shot the day previous, the blood having dried around the wound. It was a cock bird, and this shows the devotion the male sparrow-hawk displays in catering for the nestlings.

I have seen a sparrow-hawk strike down a wood-pigeon in the air. It was flying across a field, and the hawk with lightning speed swooped down on its victim. I saw the hawk distinctly for about a hundred yards before it struck. It is difficult adequately to describe it further than to say that the hawk appeared to be the shape of a wedge, or, to use the words of a Shetland naturalist, "the wings taut as sails filled with a stiff breeze." In an instant the blow was struck, a cloud of feathers flew from the pigeon, and it fell lifeless to the ground. Running up, the hawk flew off, and picking up the pigeon and plucking the feathers off it, not a scratch was to be seen, but a severe bruise along the spine had caused instant death.

On another occasion when walking along the side of a spruce plantation, a great flapping of wings was heard, and a wood-pigeon flew out with a male sparrow-hawk on its back holding on with its talons. The pigeon was gradually lowering, and the hawk was vigorously striking it with its wings, but it managed to carry it over a high thorn hedge, where I lost sight of them.

On two occasions I have seen a full-grown cock pheasant attacked by a female sparrow-hawk. This hawk is remarkable for the difference in size between the male and female, the latter being nearly double the

size of the former. It was in the month of September, and the pheasant was feeding on a stubble, when the hawk, flying low, skimmed over the hedge and pounced upon it. The pheasant, however, escaped, minus some feathers, and ran through a wire fence which separated the stubble from a field of rank potatoes. The hawk perched on one of the posts of the fence, where it sat motionless for fully an hour ; but as there seemed no indication of the pheasant reappearing, it flew off, much to my regret. The other occasion was in a rank grass field near a plantation of spruce and Scots fir. What attracted my attention was a brown thing frequently rising a few feet into the air and pouncing down again. Keeping inside the cover and stealthily approaching till I got within a distance of between thirty and forty yards, I observed it was a sparrow-hawk attacking a cock pheasant, which was uttering piteous cries of distress. Having my gun with me, I waited till the savage bird rose six or eight feet, as if to require a momentum in order to strike a knock-down blow. By this time the gun was at my shoulder, and, pressing the trigger, the victor fell beside his vanquished quarry. On going up I found the hawk dead, a pellet having caught it on the head. So dazed and frightened was the pheasant that it allowed me to lift it. Carrying it to the side of the wood, I laid it down, when it ran off apparently little the worse. It was a young bird though full grown.

An eminent writer stated that the name sparrow-hawk was a misnomer, as in all his experience he had never known one kill a sparrow. Few people ever have. Such was my experience till I studied nature in the centre of Edinburgh. Walking along the street by the side of the iron railing round the garden in St Andrew Square one afternoon, I was surprised to see a male sparrow-hawk skim in among the trees from the southward, when in an instant the warning cries of different birds indicated that he was a gloomy intruder for purposes of depredation. Not seeing him leave the garden, I concluded he had been successful in making a quarry ; and, strolling in towards where he had disappeared, I discovered the accuracy of my surmise. He was sitting on the bare grass to the north-east of the monument devouring a small bird which he held in his talons. He seemed quite unconcerned, and allowed me to approach well within twenty yards, when, giving a defiant look, while a fierce light scintillated from his bright yellow eyes, he rose slowly, carrying off his prey. Circling several times round my head till he gained a proper altitude, he winged his way down

Duke Street at about the level of the chimney-tops. On approaching the spot where he had been sitting, the head of a cock sparrow and a number of feathers were found lying, it being a habit of many birds of prey to decapitate their victims preparatory to making a meal of them. Whence *Accipiter fringillarius* came it is impossible to say; but it may be presumed he had discovered that the half-tame birds of St Andrew Square afforded an easy quarry. This is the only occasion I have ever seen a sparrow killed by a hawk. I have seen the remains of many victims at the nests of sparrow-hawks, but never the remains of a sparrow.

I have known sparrow-hawks become the victims of optical illusions by dashing against plate-glass windows. On two consecutive days one was killed by flying against a window, one a male and the other a female. It was at first thought they were in pursuit of prey, but my attention being called to the matter, I felt convinced, after having examined the place, that the hawks were not in pursuit of prey at all. I at first felt puzzled, but on looking straight at the window from a distance I discovered what to my mind was the true solution. I observed that the trees were clearly and distinctly reflected on the plate-glass—so much so that it appeared to one looking in to be like an avenue of trees, along which it is known hawks are often seen to skim. There can be no doubt that had the blinds of the window been down no such fatality would have occurred.

When a sparrow-hawk's nest is discovered the cock bird should in all cases be killed before the hen. If the latter is killed first it is sometimes difficult to secure the former. On one occasion I found the nest in a tree, and though I waited in concealment for several hours on three consecutive days I failed to secure him. Grudging the time, having other duties on hand, I adopted different tactics. Climbing the tree and putting a pole-trap in the nest, with the four eggs laid carefully around it, within an hour the hen was secured. I then pegged her to the ground, with a long string attached to her leg, to my place of concealment. The cock arrived about an hour after, carrying a thrush, but settled out of shot. Pulling the string caused the captive to flap her wings, when he immediately flew across and settled beside her. Needless to say he met a sudden death.

At another time, when watching from an extemporised hiding-place near the nest with the view of shooting the cock before attempting to

destroy the hen, he came flying in carrying a woodcock. It seems almost incredible that a male sparrow-hawk should be able to carry a bird as large as himself, but the fact remains that he did so, though from his flight it seemed with difficulty. He settled on the stump of a tree and commenced to cheep for his mate to come to the repast, but before she had time to arrive the murder of the woodcock was avenged. Planting a trap in the nest, the female was easily secured.

The MERLIN is the smallest of the hawk tribe, but small as he is, is known to kill both grouse and partridges. Personally I have never seen it kill a grouse, but know people who have, and only once have I seen it make a quarry at a partridge. I did not actually see it strike, as pursuer and pursued disappeared over some rising ground. On getting within sight again the hawk flew off, and I found the partridge, a fine strong cock bird, dead. The staple food of the merlin is the smaller birds, but when grouse, partridges, and pheasants are young it is known to do much mischief. It is more, however, as a bird preserver that I would destroy it. Fortunately it is not now plentiful. Once when walking along the top of a heathery bank sloping down to a burn at Dalnacardoch in Perthshire, I was struck with the profuse remains of small birds, which included young grouse, blackgame, snipe, water-ousels, swallows, thrushes, and more conspicuous than others, those of larks. Searching around, I discovered the nest of the merlin. The young hawks were nearly fledged, and it was a sad spectacle to see so many remains of birds, many of them of the singing class, which had been brought to satisfy the hungry nestlings. It was lucky for one of the parents I had not a gun, as it flew close past me with a lark in its talons. Will any one justify such a murderer of our favourite birds? It is more as a bird preserver than a game preserver that I would destroy him, though both are synonymous. There are few who have not watched the skylark soaring upwards and listened to its joyous sound when warbling forth its sweetest melody. The song of this bird is so universally appreciated that most people stop to listen and watch when they hear its well-known carol in its aerial ascent. Personally I concur with old Izaak Walton when he said: "O God! what happiness must Thou have prepared for Thy saints in heaven, when Thou hast provided bad men with such enjoyments on earth."

I told the keeper of the merlin's nest, and shortly after I saw both

the old birds and the young ones nailed to a board near the kennel. I could not help believing it was the best place for them. Think of the sufferings of other birds, of the young left to perish with cold and hunger in the nest owing to their parents having become the victims of the merlins! Will any lady or gentleman call herself or himself a bird preserver and say, Don't kill the merlins? I am a believer in the greatest good to the greatest number, and have often thought of the happiness that would prevail among the feathered tribe on the banks of that lonely mountain burn when they became aware of the immunity from danger by the destruction of the hawks. What would the Garden of Eden have been to Adam if an African lion or an Indian tiger were in it? Yet that is exactly what our singing birds would feel in the district haunted by the merlins. As mentioned, they breed on the ground, and frequently among heather, but in winter they migrate to the low country, where they strike terror into all our small birds.

So little is practical natural history understood, that while County Councils are nowadays passing laws to protect most of our wild birds, they must appear to those endowed with common-sense as wolves in sheep's clothing. Instead of seeing beautiful and useful birds increasing in numbers, they also include in the protected list the worst of bird destroyers. It must appear to the most superficial observer that a pair of merlins will necessarily destroy a thousand birds annually. The exact number will never, of course, be known, as when rearing their young many of their victims would also be engaged catering for their nestlings, which would die of cold and hunger. Why useful birds, and at the same time their destroyers, should be protected by our County Councils is one of those anomalies which would require a philosopher to explain.

A brood of merlins, having been hatched and reared on adjacent ground, after leaving the nest made their appearance near where I was in residence. By a lucky long shot I managed to bring one of the young birds down with a broken wing. Knowing the habits of the hawk tribe, I tethered him near a small knoll, on the top of which I planted a trap. By this means I secured three of the brood and one of the old ones. The mother bird was, however, too wide-awake, and I was baffled in securing her. Meadow-pipits, young grouse, and larks were brought to the captive bird every day till, being unable to afford the time in consequence of other duties, I destroyed it. A curious manœuvre one day came under my notice. Watching them for a considerable time, I was interested to

observe a pipit in the air and a merlin underneath it. Pursuer and pursued kept a uniform distance from each other, yet the former never seemed to attempt to make a quarry. Higher and higher they went till they disappeared from sight, and I was at a loss to understand the motive of this dashing little bird of prey. Possibly it wanted the pipit as high as possible in order at last to get above it and make a swoop.

The KESTREL is the most common of our British hawks. It is easily known from the manner in which it hovers in the air in one position for a long time by a scarcely perceptible quivering of the wings. Its staple food is mice, voles, lizards, beetles, caterpillars, and young game. It is only when pheasants, grouse, and partridges are small that kestrels are the enemy of the game preserver. When mice and voles are plentiful they are not such enemies to young game, but as is well known these rodents are frequently wellnigh exterminated by climatic influences: the hawks will not starve, and as indicated, carry off young pheasants from the rearing-field, as well as young partridges and grouse. I have found the remains of all three at their nests. That distinguished naturalist, the Duke of Argyll, grandfather of the present Duke, told his keepers not to destroy kestrels, as they did no harm. James Cameron, his head keeper, also a most accurate observer, assured His Grace they would not be interfered with if he wished them preserved, but he respectfully requested him to visit a nest of the bird in question. The sight of the numerous remains of young grouse carried to the nest by the parent birds was the means of the Duke changing his mind.

On one occasion early in June my attention was attracted by a kestrel flying out from a rock. After a somewhat diligent search, there being many rocks projecting from the steep bank, I discovered the eyrie, in which were three young kestrels at that stage when the brown feathers are showing fairly well among the white down. Thinking this was an admirable opportunity of seeing what the parent birds brought to their nestlings, I hid at a distance. Even with my binoculars, however, I was unable to find out, and the following day I adopted different tactics. Shooting some young rabbits, I again approached the eyrie when the parent birds were away. As is the habit of these birds of prey, the young ones faced me with open beak and claws, but after I had dropped bits of worm-meat into their open mouths they naturally, after feeling and tasting the tit-bits, swallowed them, and were ready for more. After

they were gorged I repaired to a distance and concealed myself. The old birds flew in at intervals with food, but, as I had hoped, the young hawks, being satisfied, refused the food, which was left lying on the ledge. After waiting between two and three hours I again repaired to the eyrie and fed the youngsters, noting what food the parent birds had brought. I stayed altogether in the neighbourhood five hours, and in that time I observed four young grouse, two moles, a lizard, half a mouse, and a meadow-pipit lying on the ledge. Next day I again visited the eyrie with some young rabbits and fed the kestrel nestlings as before. After waiting from ten o'clock in the morning till three in the afternoon, I found that five young grouse, a mole, a mouse, a blind-worm, two caterpillars ("hairy-oobits"), and some beetles had been carried to the eyrie. Thus in two days nine grouse were destroyed by these predatory birds when catering for their nestlings, besides what would be brought in the mornings and evenings when I was not there to observe.

It is because some naturalists speculate too much and argue dogmatically as to the food of kestrels that they are not listened to. What is the use of calling keepers ignorant and cruel for killing kestrels as they do no harm to game, when all those men of experience have shot them in the act? When a kestrel begins to visit the coops he is a merciless little tyrant, and displays an amount of sneaking cunning in lifting the pheasant chicks. He comes stealing in and perches on a tree until he sees the coast clear, when he pounces upon and carries off a young bird, frequently returning four or five times in a day. When engaged in the rearing-field I recollect seeing a kestrel fly into and settle amongst the foliage of an oak-tree, and I stood with the gun ready in the hope that he would swoop down. While watching him, he had also been watching me, and thinking he must have flown off unobserved, I moved away from the spot. I had not proceeded far when I heard the warning cry of a hen, and on looking round saw the kestrel flying off with a chick. One thing is noticeable in the habits of the kestrel: he seldom approaches the rearing-field twice from the same direction, and on account of his cunning he is a much greater annoyance than the sparrow-hawk.

Why the RAVEN should be protected by some County Councils is a thing rather difficult to account for. Few, if any, of the witnesses who

were examined before the "Select Committee appointed in 1873 to inquire into the advisability of extending the protection of a close season to certain wild birds" had anything to say in favour of the raven. There is a boldness and audacity about this bird peculiar to itself. It is defiant, and regardless of attacks from any other bird of prey. Even the eagle it treats with scorn. Its means of protection is found in its beak, from which the escape of its victim is as hopeless as if the jaws of a trap had closed upon it. It is distinguished by its terrible cruelty, as many shepherds can testify. It is no unusual thing for ravens to attack sheep, more especially if straying from the herd, or ewes giving birth to lambs, and pick out their eyes without otherwise injuring them. Though its staple food is carrion, braxy sheep, and stricken deer, it is also destructive among sickly lambs and young game, and where these birds are allowed to exist it is surprising how in high altitudes a brood of grouse escape. Hatching in April, the broods soon fly about from daylight to dark, and, gifted as they are with such keen powers of vision, it is surprising that anything escapes them. One can imagine a pair of grouse with their young in the early morning feeding on the tender shoots of heather, when suddenly a brood of ravens descend, and the helpless terror of the old birds, and the feeble attempts of the little ones to escape as they squat to avoid observation. The keen eyes of the ravens, however, soon detect them, and they are quickly gobbled up. I was once interested in watching a brood hunting for a covey of ptarmigan on the mountain-tops near Dalnaspidal in Perthshire. I had started early in search of a dotterel's nest, and when the summit was reached a cloud of mist came on, so I sat down among some boulders to await its clearing off. After waiting for a while a great commotion took place among some ravens in close proximity, but in consequence of the mist I could not see them. It, however, clearing a little, I indistinctly saw the sable birds flying round and again disappearing in the mist. Ever and again one of them would settle on the ground, while a pair of ptarmigan fluttered about, vainly endeavouring to decoy the ravens from the spot. Gathering from the noise that they were destroying the young ptarmigan, and having my gun with me, I sat motionless, till, in their aerial circles, two of them came within thirty yards, when I dropped them both. On going to the spot nothing was to be seen, and after hunting about with my retriever, only one young ptarmigan, somewhat less than a thrush, could be found. On

dissecting the two ravens, I found in the gizzard of one of them two young ptarmigan, which had been swallowed whole.

As already said, ravens nest early, and when the young are hatched they require a deal of food. By the time most game-birds are breeding, broods of ravens are hunting the mountains in search of prey, so that the havoc they commit is incalculable. Bred generally in inaccessible places, they seem instinctively to know when grouse-shooting commences, and resort to the locality to feast upon those wounded birds which escape from the sportsman. I have frequently observed this on the Dalnaspidal ground. Although no ravens bred on that wide area of shooting, they, about the 12th of August, congregated in large numbers, hunting all over the moor for dead and wounded grouse, and roosting at night among precipitous rocks which are to be found in that wild and mountainous district. When fishing one evening on Loch Garry, my attention was attracted by the unearthly sepulchral croaking along the mountain-ridge of about a hundred ravens, which towards dusk repaired to roost in a water "rut" or gully, washed to a great depth by the torrents of centuries, in the steep face of Meall-na-letdhrach. Accompanied by the under-keeper, I started for the loch the following evening, taking my gun with me. As daylight began to close, the ravens again appeared and settled in the "rut." Pulling to the side, and accompanied by Angus, the keeper, we ascended the hill. Keeping at a considerable distance from the "rut" till opposite the roosting-place, we waited a short time till the croaking ceased, and cocking my gun, walked stealthily forward. What appeared a small "rut" from the loch turned out to be a ravine worn by the action of water to the depth of about thirty yards, the sides of which were marked with jagged rocks, on which the ravens roosted. As we neared the edge out they flew, and though by this time pretty dark, I managed to drop a couple. Falling into the bottom of the "rut," we had some difficulty in getting into it to secure them. By going higher, however, we managed to get into the gully, and were wending our way downwards among the shingly "scithers" to where the birds lay, when I had one of the narrowest escapes I ever experienced. As already observed, the earth was washed out of the "rut," and thousands of tons were lying at the bottom close by the side of the loch—in fact, for a considerable distance the mass projects into the water. Angus, who was coming down behind, stepped upon a large boulder several tons in weight, and no sooner had he put his foot on

it than it rolled off, and came rumbling down the gorge like an avalanche. Angus's cry of alarm, and the rumble of the boulder, warned me of the impending danger, and with the instinct of self-preservation I sprang up the side, which at the place was almost perpendicular. I stuck for two or three seconds, but the "scilithery" rock giving way, I slid down again into the bottom of the "rut." During the short period that intervened the boulder passed, and though I was bruised by rolling stones which followed in its rear, I managed to keep my feet and watch it rumbling down with ever-increasing speed till it splashed into the dark waters of the lake. Had I not succeeded in avoiding the boulder as it rolled past, the consequence would have been certain death. On picking up the two ravens and examining their gizzards, I found them full of flesh—evidently that of mutton, a dead sheep being no unusual sight in that locality.

The promptitude with which those birds discover a dead sheep or stricken deer is remarkable; indeed, they have frequently their eyes picked out and the tongue torn from their mouths before life is extinct. It is no unusual thing for the deer-stalker to discover the whereabouts of a dead stag, wounded the previous day, by the presence and movements of those voracious birds. How vultures discover their prey, whether by sight or smell, has long been a subject of much discussion among naturalists, and, beyond doubt, whatever the sense be that attracts them to their food, the same instinct guides the raven to its meal with unerring precision. The raven is the earliest bird recorded in history. "In the best and most ancient of books," says Wilson, "we learn that at the end of forty days, after the great flood had covered the earth, Noah, wishing to ascertain whether or no the waters had abated, sent forth a raven, which did not return into the ark."

The CARRION- and the HOODIE-CROW may be classed in the same category as the raven. They destroy young game and eggs, and may frequently be seen hunting a moor as systematically as well-trained setters or pointers. There are few, indeed, who have an adequate conception of the extent to which grouse moors are robbed by these voracious pests. A friend and I once paid a visit to a keeper on a large grouse moor in the North, where I remained for several days. On my arrival the keeper informed me he was much annoyed, as he had just discovered a hoodie's nest which had missed his vigilance



Ravens.

on previous occasions. From the mountain-side he had seen a pair of these birds hunting the heathery ground beneath him, and with the aid of his glass he had watched them fly towards a deep glen in which were a profusion of birch trees. He at once knew from experience that they must have a nest, and meant starting next morning with a gun to try and destroy them. Of course I accompanied him, as a walk on the moor in the month of May is always interesting. The keeper's intention was to conceal himself within shot of the nest, after which I was to walk away home. The parent birds, which would no doubt be watching us, would then regard the "coast clear," and fly in to feed the young. In this, however, we were disappointed, as on nearing the nest the young corbies were sufficiently fledged to fly from it. Fortunately they had not sufficient strength of wing to fly far, but they scattered about and settled on the hillside. The old birds kept flying about, and in corbie language seemed to try and get them out of harm's way. Though the young ones took other short flights, the keeper eventually got near and destroyed them. The old birds, of course, escaped. While watching the keeper running after and shooting the young ones, my attention was attracted by the shells of grouse and blackgame eggs. Water was trickling over the steep bank for a distance of over a dozen yards, and the number of shells of eggs that had been destroyed was simply appalling. It has been a failing of mine throughout life never to do the right thing at the right time, and I have ever since regretted not picking them all up and counting them. Suffice to say, there were hundreds.

Why predatory birds should carry eggs to water before swallowing or feeding their young with them requires some explanation. I have often thought it may be that the sticky nature of eggs requires them to have water to remove it from their beaks, but possibly I may be wrong. The fact, however, remains that they do carry them to water. The accumulation of shells of grouse eggs there was such that no one could be expected to have credited its extent had it not been personally witnessed.

Instances are recorded of the carrion- and hoodie-crows breeding together; but in such cases the young must take to the one or other, as I never saw anything indicating a cross, though I have heard of it. From the absence of trees in many parts of the Highlands, they sometimes breed in a birch or alder bush a few feet from the ground. Except

in deer-forests, they are generally killed down by gamekeepers, although in some districts, and more especially by the coast or estuaries, they are found in considerable numbers. Dead fish washed ashore, or left by the receding tide, constitutes a favourite repast. In my young days I trapped large numbers at the fishing-stations in the lower reaches of the Tweed by using as bait fresh-water flounders which were brought ashore in the salmon-nets. Setting the traps close to the edge of the water, a flounder with its white belly up proved an attractive bait which they did not seem able to resist.

On one occasion, while taking a walk, my attention was attracted by the noisy clamour of a brood of crows. Having my gun with me, I stalked down a narrow plantation by the side of a small burn, and getting within fifty yards, watched their operations. In the absence of rain, the burn was almost dried up, and where the crows were engaged there was a small pool, contracted by the prolonged drought to an area of a few square feet. Some trout were there imprisoned, and two of the crows—I presume the old birds—one at each side, were catching them, and when one was secured it was carried about a hundred yards into a field. The young corbies followed, when the trout was divided among them. After watching them for a time, their proceedings were summarily stopped by a couple of shots. On going forward to the pool, I found about a dozen trout imprisoned, as already described.

Perhaps one of the best methods of destroying carrion-crows when a dead sheep is found on the hills is to skin it, leave the head on the skin, and bury the carcass. The chances are the eyes will be picked out before it is discovered. Spread the skin out in order to attract the birds in question. Arrange with the shepherd not to go near it with his dogs. Push the kidney of a rabbit, into which a grain of strychnia has been inserted, down each eye-hole, and it is almost certain there will be at least one head of vermin less next morning. I have known over thirty hoodies thus destroyed by a keeper, who went to the bait every day and placed kidneys in the eye-holes when these had been removed.

Eggs have an irresistible attraction for carrion-crows, and many are secured by using them as bait for traps. It is, of course, illegal to lay poisoned baits on the ground, but an old pigeon's nest in a tree is a safe place to put an egg. Though perhaps illegal, much good can

be done in clearing a district of crows by putting poisoned baits on small islands in fresh- or salt-water lochs. Though the hoodie-crow chiefly frequents the coast, it is at the lambing season, if not already nesting there, they scour the hills in quest of the after-births of ewes. As the nesting of birds commences at this time, it is easy to see how they will find and devour the eggs of game-birds.

The MAGPIE is one of the most expert, genteel, and well-dressed of thieves, and feeds very much in the same manner as the carrion-crow. Few British birds possess such a rich glow of colour, the brilliancy of the plumage on the tail and wings being of metallic splendour, the bird being gay alike in nature and in plumage. Considering their size, magpies make a very large nest, which they cover over with a dome of sticks, consisting frequently of thorn. It has a hole at one side for egress, and another at the other side for ingress. From the large size of the nest, which is generally at the top of some of the highest trees, it can easily be seen at a distance, and consequently attracts the attention of schoolboys and egg-collectors. Many nests are thus robbed, but often they are built on such slender twigs that a climber dare not risk reaching them. At other times magpies nest in spruce woods, and even shrubs at no great distance from the ground, where they frequently escape the notice of the robbers of their eggs. In game-preserved districts, however, magpies quickly attract the attention of the practical keeper, and as they are easily trapped, soon find their way on to the vermin board. Six or seven eggs are the usual clutch, and the period of incubation is about seventeen or eighteen days. Like some of the hawk tribe, should a magpie be shot when hatching, the male frequently brings another mate to the nest. This I have had abundant opportunities of observing. I have often shot two female magpies off the same nest within a week. The Rev. Mr Morris, in his delightful book, 'British Birds,' says: "If one of the pair happen to be killed, another partner is incontinently obtained. One once thrice a widower procured a fresh helpmate each time in not more than two or three days. Six others in succession sat on the same set of eggs in the parish church of Midcalder."

A pair of magpies made their nest in a tall elm-tree in a wood close to my house. Beneath were a number of thick shrubs, which constituted an excellent hiding-place. When the female entered upon the

process of hatching, I got a man to beat the tree with a stick, which startled her, and I shot her as she flew off. Knowing from experience the habit of predatory birds, that if the female is killed the male bird visits the nest early the following morning, I started before daylight and concealed myself in a thick holly bush. Soon after daybreak a number of magpies made their appearance, and kept up a hilarious chattering for a considerable time. One of them eventually settled within twenty-five yards, when I fired and killed it, and the remainder quickly disappeared. For the next four consecutive mornings I succeeded in killing one, but on the fifth morning no more came. It should be mentioned that on the last morning of my success two only made their appearance. Thus six magpies were killed at the same nest within a week. I have always regretted not dissecting them in order to ascertain the sex, as it might have thrown some light on their reason for coming morning after morning.

In order to study the habits of magpies I made close observations of those of a pet bird which was named "Jacky." Taken from the nest, he became very tame and exceedingly mischievous. Any small tool—knives, scissors, thimbles, keys, coins, or anything he could lift which attracted him—was carried off and hidden. By watching his movements, however, the hiding-places were found, and the stolen articles recovered. "Jacky's" bill of fare was a varied one. Bits of meat raw or cooked, bread, ham, eggs, and potatoes, he seemed to relish, and everything that creeps or flies which he was able to kill was devoured, with the exception of earthworms and snails. Unless very hungry he usually hid his food, burying it in the earth, and after he had it carefully covered he put as large a stick or stone as he was able to carry over the place. When hungry he returned with unerring accuracy, and regaled himself on his hidden treasures. He devoured a large number of wasps, and one day when a swarm of bees settled near they afforded a fine day's enjoyment for "Jacky." Not content with feeding on the bees, he seemed to take a special delight in killing them, and every one he discovered crawling about was speedily destroyed. It surprised me how he managed to swallow wasps and bees without being stung. Watching closely, I observed he seized them crosswise with the point of his mandibles, when the abdomen containing the sting and poison-bag was cut through and dropped, and the remainder found its way into his maw. Whether this cunning device was traceable to hereditary habit,



Egg Stealers.

or the bird had been stung and knew the danger, it would be difficult to say. Young sparrows and other birds which he happened to notice met with a similar fate. Mice seemed to afford him great amusement, as he watched and pounced on them with greater dexterity than a cat. When he secured a mouse, if hungry he began at the tail and turned the skin up towards the head, completely removing it prior to devouring the carcass. This is at variance with the normal habit of wild magpies, as I have found on dissecting them that mice have been swallowed whole. "Jacky" did not seem to relish a rat, as he only picked out the eyes and brains, and left the flesh untouched. In their wild state magpies are practically omnivorous. I have found grain, flesh, mice, lizards, birds, beetles, caterpillars, moths, fur, and feathers in their gizzards. The indigestible parts are cast, as is common with all predatory birds.

"Jacky" robbed all the birds' nests round about, and was often besieged by blackbirds, thrushes, and other birds while he was amusing himself in tearing their nests to pieces, and regaling himself on their eggs. Sometimes several of his own species appeared in sight, when he instantly attacked them, and frequently returned ruffled both in feathers and temper.

That magpies are most destructive in a game preserve must be apparent. When a pair have a brood of six or seven to cater for it is easy to see, if a covey of young pheasants or partridges are discovered, that the chances are that the entire lot will be carried off. I long ago learned by observation that where these birds are allowed to harbour, it must be a very closely concealed pheasant's nest if it escapes their vigilance. Nothing is more annoying to a keeper than when he knows of a pheasant's nest, and on going his rounds takes a keek to see that she is sitting all right, but finds the nest empty. This I have frequently experienced, magpies being allowed by two old ladies to breed on an adjoining estate. Though I trapped a number of them, still a brood would make their appearance in my woods after being able to fly about. I soon, however, secured the lot by putting some poisoned eggs among ivy on the top of a high garden wall, but by this time the mischief was done.

Magpies are regarded by some country people as unlucky birds, and certain numbers of them together are considered ominous of good or evil. I recollect when a boy of being impressed with a rhyme

which was usually applied when a brood of magpies was seen in the district :—

“ Ane’s mirth, two’s grief,
Three’s marriage, four’s death,
Five’s heaven, six is hell,
Seven’s the Devil’s ainsel.”

I also remember hearing of an old woman-servant in a farmhouse who saw a brood of magpies, and told her mistress something serious was sure to happen. A few days after the farm-steading was burned, and she quite believed the misfortune was foretold by the magpies. Clare Jerrold tells us, in his ‘Stories of the Kaiser,’ that “Kaiser Wilhelm is superstitious, believing in ghosts, ominous days, and signs. Once, when he was hunting with the Duke of Cambridge, a magpie flew over his head. Turning to the Duke, he remarked : ‘I am not really superstitious, but I hate seeing these detestable birds.’ The Duke laughed and replied—

“ ‘Surely you know what we say of them ?—One magpie, death ; two magpies, sorrow ; three, marriage ; four, a birth. You really must look about you, and try to see three or four magpies.’

“ ‘Really ! Four signify a birth ; but suppose you see five ?’

“ ‘Five,’ gravely answered the Duke—‘five means twins.’”

It is said that each time Wilhelm was on the eve of becoming a father his mind reverted with anxiety to the magpies.

Notwithstanding all that certain theorists have written and said about the “balance of nature,” the destruction of predatory birds like the magpie is an essential condition of the happiness of every warbler in the grove. This truth is so thoroughly borne out by experience, that I can only express surprise at it ever being called in question by any who have had the means of informing themselves upon the subject. I am certain that had the old ladies on the adjoining estate referred to been aware of the destructive character of magpies among birds of the singing class, they would not have been such favourites.

The beautiful lines of Goldsmith are well known :—

“ No bird that haunts yon valley free
To slaughter I condemn ;
Taught by the Power that pities me,
I learn to pity them.”

If the writer, however, allowed magpies to breed in the "valley free," he was acting the part of a wolf in sheep's clothing.

I have frequently caught magpies in stone traps set for ground vermin. Caithness flag-stones propped up by three sticks in the shape of the figure 4 is perhaps the best trap for ground vermin. It is, at any rate, more humane than any other, as directly the bait, which is secured to the trigger, is interfered with it is sudden death, as the victim is crushed flat. The prying eyes of magpies must notice the piece of rabbit used as bait, and go beneath the stone to peck at it, with the result already mentioned.

Rooks also are very fond of eggs, and the quantity destroyed by them is vexatious. To prevent this havoc altogether is impossible, their numbers being legion. There are those who affirm that rooks do not rob grouse nests. There can be no greater mistake. Let any one visit those mountain-springs frequented by rooks, on an unprotected grouse moor, during the months of April and May, and he will be surprised at the number of egg-shells which he will find to have been carried thither by the rooks. Indeed the extent to which grouse nests are robbed by rooks, more especially in the south of Scotland, where the cover is scant, is simply incredible. In pheasant preserves I would suggest that all the early-laid eggs be lifted by the keepers, hatched, and hand-reared. Beginning to nest towards the end of April, there is very little vegetation to cover the nests, and this also being the time when rooks require a deal of food for their young, eggs are destroyed in large numbers—in fact, I am of opinion that in open ground very few nests escape their vigilant search. After May begins, leaves come quickly out, grass and weeds grow fast, and these prove a great protection to the nests of pheasants and partridges from the searching eyes of the rooks.

My friend, the late Mr Scot Skirving, in giving evidence before a Select Committee, appointed in 1873 to inquire into the advisability of extending the protection of a close time to certain birds not included in the Wild Birds Protection Act of 1872, said of rooks that they "eat more game eggs than other birds on earth. I have picked up as many partridge eggs under a rookery as would fill my hat. Every year we get six or eight pheasants' nests, and, in spite of covering them

with grass, the rooks eat them all." Mr Scot Skirving, as is well known, was a large farmer, and a distinguished naturalist.

While the rook, more especially during the summer months, frequents the more remote districts of the country, it is also to be found in the centres of civilisation, and is occasionally treated as a domestic favourite. It is in such circumstances that the shrewdness and forethought of the rook are discoverable. In a small garden in the immediate suburbs of Edinburgh, a number of rooks have been regularly fed for a series of winters. It having been noticed that they had a special fancy for flesh-meat, the scraps from the dinner-table were regularly preserved for their breakfast on the following morning. A couple of stray cats were in the habit of turning up to join the rooks at breakfast. The rooks by their noise and offensive attitude proved themselves able to keep the cats at bay until their appetite was fully satisfied, when, on their leaving, the cats picked up the remaining food. On the rooks discovering this, it was an interesting study to observe them, after having satisfied themselves, picking up pieces of the remaining meat and carrying them into different parts of the garden, where they carefully buried them in the earth, or covered them with a small piece of turf which they utilised for the purpose. During the afternoon they regularly returned, and with unerring accuracy disinterred the pieces of meat concealed in the morning.

While staying at Dalnaspidal, I was interested in the movements of a stray rook which I observed paying a regular visit to a goods-waggon standing on the siding at the station. Curiosity led me to ascertain what could be the object the sable visitor had in view. On watching his return to the waggon one afternoon, I was not a little amused to observe him perch at the side of the wheel, and, by placing his neck awry, push his beak sideways under the lid of the grease-box, when, by a process of ingenuity rarely equalled by the feathered tribe, he was thus able to dine at the expense of the Highland Railway Company!

JAYS and JACKDAWS also destroy eggs, and I would suggest trapping as many as possible with eggs in places frequented by them. Though jackdaws, as a rule, breed in rocks, and holes in decayed trees, they are to be found making their nests in holes in banks like sand-martins. When fishing in the Spey I have often witnessed them going into and



Jays alarmed.

coming out of rabbit-holes. Though, as already said, they devour eggs, they are also destructive to young game, and I have frequently shot them carrying off young pheasants from coops in the rearing-field.

Where these birds are in great numbers breeding in rocks, the best trap for them is a large cage twelve or fourteen feet square, like a gigantic mouse-trap. The frame of it is made of wood, but of course all covered with net-wire. It must be at least six feet high in order that a man can walk comfortably in it. A door into it is of course necessary for ingress and egress. The entrances for the birds, one at least on each side of the square, must be wide at the outside and taper inwards for three feet, till they are sufficiently large to admit the birds and not much more. If a dead sheep can be procured and placed in the centre, it will be found that jackdaws and gulls will find themselves imprisoned. I have known sixty-five jackdaws captured at one haul. The keeper wrung their necks, but I told him he might have sold them alive at a shilling each for a "pigeon match."

OWLS.—Though the owl tribe are special favourites with most people, still they cannot be exonerated from being destructive to game. As the result of many years' experience, and while frankly admitting that the tawny owl destroys many mice, I affirm that it is most destructive to birds of the singing class as well as game. Year after year I have removed the young of these birds from the nest and put them in a box for the express purpose of observing what food the parent birds brought to them. This generally consisted of blackbirds, thrushes, sparrows, finches, young pigeons, both wild and tame, young pheasants, young partridges, moles, young hares, young rabbits, and mice. Once I observed an unfledged wild duck brought to the owlets. It is a mistake to suppose that owls seek for their prey only in the dark. At the time when catering for their nestlings, which is when the days are at their longest, they commence to hunt between three and four o'clock in the afternoon. Even in the middle of February I have seen one swoop down on to the public road at midday and pick up a squirrel. No doubt this was unusual, but it shows the savage nature and destructive character of the tawny owl.

Owls are most interesting birds, and well repay a study of their habits. They rarely, if ever, make a nest for themselves. While partial to holes in old decayed trees, they are frequently found in young woods,

having taken possession of the old nest of a hawk or hoodie-crow. They gather no material to form a lining for the nest, but, like wood-pigeons, lay their eggs on the bare sticks. They lay from three to five eggs, white like a wood-pigeon's, but considerably larger and rounder in shape. A peculiarity of owls is their commencing to incubate immediately after dropping the first egg. The consequence is that the eggs do not hatch at the same time, and a considerable difference in size among the young birds is conspicuous. Owls breed early, and I have seen the young ones flying about in the end of April. Few birds display so much faithfulness and bravery in defence of their nest and young. When the young are hatched the parent birds frequently attack with great violence any one who intrudes near the nest, and it is dangerous for children to do so. Several people of my acquaintance have been wounded in the neck by the savage talons of tawny owls on going near their young. A paragraph appeared in the 'Feathered World' some years ago, where it was stated :—

A few days ago, in the parish of Hartland, on the north coast of Devonshire, as a rabbit trapper was returning home after attending to his traps, he had to pass through a small gate underneath an ash-tree, in which was an owl's nest. He was suddenly seized by one of the owls, and had the back of his neck much torn. The most serious part of the affair occurred the following night. As the man was returning home as usual, the owl fixed itself on his face, and tore his eyes so badly that it is feared he will be permanently blind.

From a nest in a cavity of a large ash-tree, after a heavy rain, I found a young owl on the ground some twenty or thirty yards from the tree, and another in a "drookit" condition sitting on the low branches. Anxious for their safety, I put them in a box, half of which was covered with wicker-netting, being aware they would be well attended to by the parent birds. With the aid of a ladder I scaled the tree and found a third bird, smaller in size, in the nest, which I placed in the box beside the others, with the view of saving the old ones the trouble of feeding them in two places, and being also anxious to observe minutely the character of their food. Returning to the box an hour after, and still early in the afternoon, I discovered that a young hare, minus the head but quite warm, had been placed beside the young birds. For a fortnight after I carefully noted the food supplies brought to the owlets, and which were, as already mentioned, included in their bill of fare. On



The Tawny Owl.

going near the box, especially in the evening, they usually attacked me, striking from behind. With my coat collar up and my cap well drawn down they could not hurt me, but I scarcely could have believed that an owl could strike my back and shoulders with such violence. One night while out with my gun in the gloaming to shoot some young rabbits for my pet kestrels, I passed the box where the owlets were confined. After a few defiant threatenings from different trees, one bird flew to attack me, making straight for my face. When within eight or ten feet he seemed so resolute in his purpose that I threw the gun hurriedly upwards and backwards, with the view of scaring or striking him, to protect my face if he should persist in his attack. Unfortunately at that moment the other one was approaching me from behind, and as the gun was thrown quickly backwards prior to bringing it forward to strike the one in front, it met the female with such violence that it knocked her to the ground. She was only stunned, however, and quickly getting up, flew on to a sycamore-tree. From the number of feathers on the ground and adhering to the muzzle of my gun, I feared she must have been badly injured. For two days thereafter she was never seen, but on the third I was pleased to see her return to attend to her imprisoned progeny. The other bird never actually touched my face, probably scared by my defiant attitude with the gun, or seeing his mate knocked to the ground, but flew up into a tree, and in "hoolet" language snapped and denounced me in terms more expressive than polite.

Before liberating the young owls I went to the cage one evening before dusk, and concealed myself beneath a thick yew-bush under an oak-tree near the box containing the young. Before darkness had thoroughly settled down the owls several times glided silently past. All was now quiet as the grave, but I could distinctly hear the owls on the cage feeding their young within ten feet of where I lay, though I could discover nothing in the darkness. At last one of the owls perched on an oak branch right between me and the western sky, with a bird in its talons, and commenced its supper. Judging from its size, I concluded it was either a blackbird or a thrush; but though it was right between me and the clear sky, I could not in the imperfect light discriminate which. Holding its victim with one claw, the owl speedily tore it to pieces and devoured it, feathers and all finding their way into its capacious maw. So soon as it finished it

flew off, and though both birds frequently glided past, I was not again favoured by seeing either of them perch where I could observe their manœuvres.

Although the owl tribe, as I have said, are favourites with many people, nevertheless it must be admitted that much young game and many of our warblers of the grove are annually destroyed by owls, nature having provided them with powers of vision in the dark so that they can lift birds from the roost. I remember visiting a friend in Berwickshire, the wall of whose house was covered with ivy right up to the window of the bedroom where I slept. As the window was open, I could hear a rustling among the ivy, and the piteous screaming of the little birds as they were seized in the cruel talons of the owl was certainly not conducive to my slumbers. As mentioned, both young ground and winged game are carried to the owlets. Not only so, but in an open pheasantry at Inveraray, pinioned hen pheasants were killed and devoured by tawny owls. Mr Cameron, the head keeper, was at his wits' end to discover what was killing his birds. He suspected rats, but could find no traces of the vermin. The mystery was, however, solved one morning, a heavy fall of snow having taken place during the night. Another bird was found killed and partly devoured, and the marks of feathers only, with no tracks of ground vermin, proved that the tragedies were the work of birds. Making up his mind that owls were the depredators, a trap was set at the half-devoured pheasant, and a pole erected for a trap on the top of it, with the result that a tawny owl was found in each of the traps the following morning. No further destruction took place among the pheasants.

At the same place a large number of wild ducks were being reared, and the ducklings, several weeks old, were confined with wire-netting in a pretty large space in order that they could run about and catch flies. It was noticed that they were getting fewer in number, and it was resolved to try and count them—rather a difficult job. One day, however, the under-keeper who attended them was certain that two or three of them had disappeared since he fed them in the morning. Mr Cameron and he at once got guns and concealed themselves, one at each side of the temporary paddock in which the ducklings were confined. Very soon an owl glided past Mr Cameron, but he dare not shoot, as the pellets would have scattered right in amongst the young ducks. Shouting “look out” to his companion scared the owl, which

flew on to a tree quite close to the under-keeper, when, needless to say, the murder of the ducklings was quickly avenged.

The long-eared owl is common in most parts of the south country, especially where there are spruce woods, where it sits screened from observation during the day. It is easily known from the "horns" or tufts of feathers on its head. Usually selecting the old nest of a pigeon, it deposits its eggs, generally five in number, and few birds display more faithfulness and bravery in defence of their nest and young. After a heavy fall of snow and severe frost the following night in the month of March, I have seen one frozen to the nest, though, life-like, covering her eggs.

The habits of this bird resemble pretty much that of the tawny species, though I don't think it is quite so destructive. From observations at a nest in a spruce wood I discovered that unfledged wood-pigeons were the staple food carried to the young. Wood-pigeons breed in the wood in great numbers, and the young of course would fall an easy prey to the owls. Like others of its tribe, it also preys upon small mammals.

In the absence of fir woods, I have not seen the long-eared owl on the estate on which I reside. Some years ago I brought a nest of five young ones from Abington in Lanarkshire, and kept them in an aviary till fully matured, when I gave them their liberty. They were never seen again, though I have since witnessed this species in the woods at Mortonhall, about two miles distant. The young owls while in confinement were fed chiefly on rabbits and small birds, with mice when I could get them. Passing the farm-stead of Liberton Tower Mains one day, I heard a commotion on a stack which was being carted to the threshing-mill. Ascending a ladder to ascertain the cause, I found that on a sheaf being lifted quite a number of mice were exposed, which those on the stack attempted to destroy. On further examination, however, their numbers defied computation, and I requested the grieve to catch as many as he could and send them as food for my pet owls. Putting on a glove, the grieve succeeded in securing over two hundred, put them in a bag, and despatched a boy with them. The messenger rang the bell and handed a servant-girl the bag with its living freight. The girl happened at the moment to be dressing, so, taking the bag, she laid it down on the kitchen floor and returned to her room to finish her toilet. On returning she was horrified to find all the two hundred mice running about the kitchen in wild confusion. Fortunately the doors were shut,

and the floor being granolithic, a couple of fox-terriers were brought in and the mice speedily destroyed.

The barn-owl has been characterised as a "high churchman," from its frequently breeding in the spires of churches. It is fairly plentiful around Edinburgh, and, as far as I am concerned, it is carefully preserved. I never shot one in my life, and as it is so strictly nocturnal in its habits it is difficult to see what it carries to the young. It is the best mouse destroyer of the owl species, and I once knew of a nest in an old dovecot to which it carried large numbers of this rodent. Mice, however, are frequently almost cleared out by climatic influences, when the owl substitutes bird-life for its prey. It is known to invade the pheasant field and carry off chicks after they are too large to shut in at night. The keeper on an estate with which I was associated was rearing over two thousand pheasants. Finding that in several coops the number of chicks was gradually becoming less, he kept a careful watch far into the night, and discovered that as it got dark a barn-owl settled on a coop and flapped with its wings on the boards till the birds ran out, when it swooped down and carried one off. From his position in the darkness he could not get a shot at it, and discovered the following morning that three chicks were awanting. Informing the factor what was happening, and that he intended shooting the owl if he could, that gentleman remonstrated, stating that "the barn-owl did no harm to game—it was mice it was after; that it was illegal to shoot it," and advanced all the arguments of the feather-bed naturalist. The keeper, whose reputation was at stake, could not submit to his master's birds being carried off in such wholesale fashion, and again concealed himself among the coops as it began to get dark. Exactly at eleven o'clock the owl made its appearance and settled on the same coop as on the preceding night, and in an instant a shot was fired and it fell dead to the ground. Still two birds disappeared that night, but the following evening another owl, probably the mate of the one killed the preceding evening, met a similar fate, and the pheasants thereafter were left in peace.

The barn-owl, as has been said, being strictly nocturnal in its habits, is consequently seldom seen, though I have both nesting and roosting places close to my home. Tragic deaths of three of these birds recently came under my notice. Two of them were drowned in a barrel half-full of water in an old quarry. Why they went into the barrel must remain

a mystery, unless, like the dog in Æsop's fable, they saw their own image in the water and wanted to make a closer acquaintance. The other was caught on the telegraph wires near Liberton. Whether it was killed at once by the force of the impact or, as its wing was twisted round the wire, it was held a prisoner for some time until it died, is not known. It was in any case quite dead when it was discovered.

The short-eared owl is a winter visitor to this country, and only on rare occasions was it known to breed till the outbreak of the vole plague on the Border pasture-lands about twenty-five years ago. Hundreds at that time were to be seen nesting in the heather like grouse, and laying as many as ten or twelve eggs. While studying these birds in Ettrick Forest, I took a couple of young ones home in my pocket for the purpose of finding out as much as possible about their habits. It has been demonstrated beyond all doubt that in whatever part of the world a plague of mice appears, short-eared owls, impelled by a powerful instinct, are sure to follow and prey upon them. How they make the discovery is one of those mysteries in nature upon which we can only speculate. Capital was made out of the mice plague by farmers, on the ground that the destruction of pasture by the mice was traceable to the destruction of hawks, owls, &c., by gamekeepers, in the interests of game preservation. Unfortunately for the advocates of this theory, mice plagues had appeared in different parts of the country centuries before game preservation was ever thought of, and, strange to say, they were followed and devoured by short-eared owls. In the year 1580 we are informed that "an army of mice overran the marshes near Southminster and ate up the grass to the very roots. The like happened again in Essex about sixty years after." Subsequent attacks are recorded in the neighbourhood of Bridgwater in Somersetshire, where it is stated that "such incredible numbers of mice overran the country as to destroy a large portion of vegetation." Mice plagues were also recorded over a century ago in the New Forest in Hampshire, as well as in the Forest of Dean, Gloucestershire. To go further back, it is recorded in the Bible, in 1 Samuel, that the "Philistines made golden images of the mice that mar the land." Surely no one will venture to affirm that the land of the Philistines was marred by mice as the result of "excessive game preservation."

The owls on the Border pasture-lands increased amazingly, but so did the mice, till nature took the cure into her own hands. A fall of soft

snow occurred one day, and was succeeded by very hard frost, when the mice were frozen in their holes and burrows. When the thaw came, ten days after, not a mouse was to be seen. What, it may be asked, became of the owls? Being suddenly deprived of their natural food, they died in hundreds. The late Mr Noble of Bothwickbrae, which was in the centre of the mice-infested district, lifted as many as twenty dead and dying while walking round the edge of Alemoor Loch, and several times took them home to try and domesticate them.

I must confess my ignorance of the habits of short-eared owls until the outbreak of the mice plague referred to. I have frequently come across them when partridge-shooting in turnip fields and rough pasture land in the winter months; but, save on one occasion, at Dalnaspidal in Perthshire, I have never seen them in summer. It has been said that "they are perfectly harmless to game." From their savage nature I had grave doubts about this, more especially as I had read the statements of recognised authorities on the subject. Mr St John, in his well-known book, 'Wild Sports and Natural History of the Highlands,' says: "I saw a short-eared owl hunting a rocky field and regularly beating it for prey at midday. . . . He put up and made a dart at a snipe, but did not follow up his pursuit, probably perceiving that it would be useless." The short-eared owl has frequently been known to breed in the Orkney Islands. Mr Low, in his 'Fauna Orcadensis,' refers to it as "breeding in the hills of Hoy, where it builds its nest among the heath. It is there," he adds, "of great boldness, and has been seen to chase pigeons in the open day. In a nest containing young I found the remains of moor-fowl and two plovers, besides the remains of several others."

In view of the above statements, I resolved to make some experiments. Having my two short-eared pets in an aviary, they had now grown into fine matured birds, and I introduced beside them a young pigeon, a young partridge, and a missel-thrush. They quickly killed them, and, as is characteristic of the owl tribe, they decapitated their victims preparatory to making a meal off them. I was so struck with the savage aspect of these owls that I did not think they would discriminate betwixt a vole and a small weasel, more especially as they are nearly of the same size, though the latter is longer in the body. I therefore resolved to try further experiments; so, shutting the owls in a room about fifteen feet square and procuring half a dozen weasels, I put



Short-eared Owl attacking Snipe.

them all together, feeding them chiefly on sparrows. The owls sat on a broad perch about four feet from the ground and the weasels in a box of hay on the ground. On entering the room hurriedly, one of the owls flew on to his perch with a weasel in his talons, and within a week three of them were devoured by the owls. It ought to be added, however, that the remaining three weasels and the owls lived together for some time without interfering with each other. As I have frequently stated, I do not base any theories on experiments which dissociate wild creatures from their natural environments and place them in captivity; but this incident, though not to be accepted as conclusive, affords presumptive evidence that weasel preservation and owl preservation are by no means synonymous terms.

While, as has been seen, the short-eared owl wages war boldly in the light of day, it is different with other species of the tribe. The others referred to are equally cruel and rapacious, and, as has already been said, lift the unsuspecting victims while at rest in their roosting places in the darkness of night. As a boy, with the aid of a bull's-eye lantern, I used to catch small birds by lifting them with my hand from the perch on which they were sitting among ivy in the dark. Many, of course, flew off, but others, bewildered by the light, sat still till captured. It will thus be seen what advantages owls have by being able to see in the dark, and the ease with which they can obtain their food supplies.

It is because a certain class of naturalists attempt too much that they are not listened to. What is the good of their asserting that owls and some hawks are "perfectly harmless to game" when most keepers of experience have shot them in the act? I do not advocate the destruction of owls, and certainly never shoot them myself; but I ask in all seriousness, Would it not be better, instead of trying to cram down people's throats that they do no harm, to paint them in their true colours, and say, in the words of the poet—

"Smile on their work, be to their merits kind,
And to their faults, whate'er they are, be blind"?

CHAPTER IV.

GROUSE-SHOOTING.

THE 12th of August is a "red-letter" day in the calendar of the sportsman. None but those experienced in grouse-shooting know the amount of interest which characterises the conversation at the dinner-table the night before the Twelfth. The sport of the morrow is of course the theme of conversation, by which the young and ardent sportsman is wrought into a fever of excitement. The beat, the number of cartridges required, the character of the dogs, and the probable bag, all fall to be discussed. Before retiring, the barometer has been examined, the sky scrutinised, and judging from these and the previous state of the weather, the programme of the morrow is conditionally settled. If everything indicates that the day is to be sultry and warm, and the head keeper is thoroughly up to his work, he will recommend an early start. If, on the contrary, the weather is broken, and a wet day probable, he will recommend that the start should not be earlier than ten o'clock, as by that time a pretty correct opinion may be formed as to the prospects for the day.

These remarks do not apply when a course of good weather has set in, and which during the months of August and September not unfrequently prevails for several weeks in succession. On such occasions, when the sun runs its course in the heavens without intervening clouds to obscure his rays, the weather, except at intervals with a sharp breeze, will be found sultry and warm. In these circumstances, it is advisable that the sportsman should start early, and rest several hours in the middle of the day when the sun is at its height. It is as essential for the sake of the dogs as it is for the sportsman, as the scent is invariably better in the morning and again as evening advances. This is to be attributed to the grouse basking in the sun and moving little about

during the heat of the day ; whereas, as the afternoon wears on, they begin to move about in search of food. A soft breeze generally springs up as the afternoon advances ; and when this is the case, it is surprising how dogs jaded with hunting on a steep hill and under a burning sun become inspired with fresh vigour.

Gentlemen who have for months previous to the commencement of the shooting season been attending to their parliamentary duties, or who have been unremittingly engaged in commercial or literary pursuits, are physically unfitted for prolonged exercise on the moors. We would therefore recommend that, where it is possible, a few days should be devoted to angling among the lakes and mountain streams. If a couple of hours' sharp walking should be required to reach these from the lodge, it will be all the better, even should they have to travel a few miles homeward at the end of the day. By this means they would prepare themselves by a process of training, at once practical and enjoyable, for the toilsome exercise amid the moors and mountains. By strict attention to this salutary recommendation, the real enjoyment of the Twelfth would be vastly augmented, and the sportsman might escape that sense of overpowering fatigue which so frequently detracts from the real pleasure of the first two or three days of the season.

A good illustration of this took place a few years ago, when an American gentleman took a large shooting in Perthshire near Pitlochry. Loch Broom was on the moor, but about three miles from the lodge, and as the tenant and a friend arrived at the beginning of August, I advised that they should daily repair to fish the loch with the view of getting themselves into walking condition for the Twelfth. So far they took my advice, but unfortunately for themselves they rode ponies to and from the loch. They had just crossed the Atlantic, and as a consequence they were physically unfitted for prolonged exercise on the moor. As I was kindly invited to be one of the party, and as grouse were plentiful, I enjoyed the day immensely. The result was, however, that my friends got so tired that they gave up and reached the lodge by six o'clock. I regretted this, knowing, as I do, that between six and eight o'clock is the best time for filling the bag. After being gorged with their evening meal, grouse sit close and consequently are easily killed.

The next consideration, and by no means an unimportant one, is, How and where is the sportsman to hunt ? It is not enough that he has before him a good beat well stocked with birds, and that the dogs are

highly bred and well trained. We have known sportsmen in possession of all these requisites, who, from want of personal knowledge, or through the stupidity of others, have their temper chafed and their day's enjoyment destroyed. In order to avoid these serious annoyances and disappointments, a knowledge of the ground and an acquaintance with the habits of the birds are most essential. When grouse are plentiful on moors which are carefully burned, and where springs and streamlets abound, they may be found anywhere and at any time. It is, however, where birds are scarce, and the ground not so favourable as here described, that a knowledge of the habits of the grouse proves of much advantage to the sportsman. Should an early start be made, the birds will be found on the feeding-ground—that is, on heather of two or three years' growth. They generally repair to such places in the early morning to feed on the young and tender shoots; and if heather, which is more rank, be in the neighbourhood, they will run into it to conceal themselves on the first indication of danger, where they may remain till their whereabouts are discovered by the inquisitive nose of the pointer. Strange as it may appear, though grouse feed very early, they do not gorge themselves with heather as they do in the evening. Very little is found in their crops till well on in the afternoon, when the quantity they devour is surprising. As the day advances, particularly if the sun be hot, they betake themselves either to the banks of streams or to ground interspersed with ferns, bog-myrtle, &c., where they are often found when splendid patches of heather have been hunted in vain. As the evening approaches, they again repair to the feeding-ground. After having fed, they generally, about an hour before dusk, resort to their roosting-ground for the night. Should the sportsman, from any one of the numerous causes which render his day's work sometimes unproductive, or from his reluctance to return home without a good bag, be desirous to continue the sport, we would remind him that now is his opportunity. Let him start with fresh resolve, and follow the coveys to their resting-place, where, as already said, after being gorged with their evening meal, they will lie like stones, until flushed one by one at the nose of the dog. Unless he be a most indifferent shot, he will in such circumstances have no difficulty in securing a good bag.

Should the day be wet, the difficulty in making a bag is much greater. The grouse instinctively get on high and dry ground or bare "nobbies," where they sit motionless, so that the rain runs off them,



Rising wild.

aided by the natural lubrication of the feathers; consequently they do not get so wet as if their feathers were subjected to contact with the damp cover. From their elevated position they can observe the approach of men and dogs at a distance, generally taking care to be off before the sportsman can get within range. When such is the case, or at any time when birds are wild, if a good bag be desired, the ground should be hunted in a systematic manner. Care must be taken that the ground in all cases be hunted against the wind, and when the dog points, to keep him in advance, so that the birds may be driven forward, when the probability is they will be fallen in with again. Even wild birds, when driven forward two or three times, will often separate and sit to the dog, and be easily bagged. Here it is important to observe that care must be taken to hunt the beat invariably from the boundary inwards, unless where the moor is so extensive as to render this precaution unnecessary.

When birds are wild, many sportsmen sometimes use "Dart's kite," and keep it flying over the part of the moor being hunted. When, as a rule, coveys of grouse take wing long before they can be got at, single birds or pairs will lie like stones under the "hawk," and thus the sportsman gets within easy range. When flushed, however, they dash off at such a pace that it requires an expert shot to bag them.

Quietness during grouse-shooting should be rigidly maintained. We have often seen the moor cleared of birds for a radius of several hundred yards by people continually calling or whistling to their dogs. This to a real sportsman is simply intolerable. Many argue that speaking or whistling does not frighten grouse so much as the report of a gun. This is a mistake, as we shall have occasion to demonstrate when dealing with grouse-shooting among corn-stooks in a subsequent chapter.

There are few conditions which the genuine grouse-shooter will more rigidly insist upon being observed while on the moor than that of silence. Let us accompany a shooting party thoroughly up to their work, and we shall perceive at a glance how desirable it is that unnecessary hubbub or noise should be avoided.

Two gentlemen agree to shoot together, and after a hurried breakfast jump on their ponies or into their car. The moor is reached, keepers and dogs are awaiting them, guns are taken from their covers, cartridges from the panniers, and all is ready for a start. The dogs are standing in couples trembling with nervous excitement, and pulling

with all their strength in their eagerness to be let off. Let "Grouse" and "Nell" go, and the gillie in prompt obedience uncouples them. They are for off at once, but the word "down" reminds them they must wait till they get the order to start. Hold up "Grouse," and with a wave of the hand to the right he is off at a rapid pace. "Nell" is signalled to the left, and promptly starts accordingly. Being jealous of "Grouse" finding birds before her, she turns quickly, evidently afraid that he will have anticipated her in finding game. She sees him galloping still on the search, follows him for a second or two, and then, as if determined to have the first point, takes a sweep round for herself. They range on both sides, quartering their ground and crossing each other with remarkable precision. In turning, "Grouse" finds himself close upon game, and drops in the heather as if shot. Hush! the old cock's head appears above the heather; he sees the danger, and means to be off. "Nell" has turned, and is coming right down on them. She will not get the wind of them, and seems almost certain to put them up. To cry "toho" is in all likelihood to result in the birds taking the hint and making off. Fortunately, she catches sight of "Grouse" crouching among the heather, and in an instant is as motionless as a statue. The old cock, seeing the danger on both sides, squats down in the hope of being unperceived. The sportsmen walk up to the dog, one on each side, and by encouraging him forward, he crawls on his belly for a few yards, when up starts the covey. The old cock, rising first, as is usual, ten or twelve yards ahead of the brood, is the first to fall. The other three barrels are discharged in rapid succession, when it is found that the old hen and two young birds have also fallen before the well-directed fire. Dogs are down-charged, and when the guns are reloaded, told to "seek dead," and they are not slow in finding them. They are picked up and admired, and taken charge of by the gillie. Though five or six guns walking in line on a moor with pointers hunting is nowadays frequently indulged in, to make grouse-shooting really enjoyable not more than two guns should shoot over dogs. In no case should retrievers be out with pointers, as it is unfair to the latter not to let them "seek dead" and find the birds they have so successfully pointed. In such circumstances grouse-shooting, which is the elixir of sport and unrivalled by any outdoor recreation in the world, can be successfully enjoyed. If the party choose to follow the flight of the remainder of the covey, they may also be bagged without much difficulty. It is in such

circumstances that the advantage of singling out the old birds—more especially the old cock—at the first rise is apparent, as the young birds, without their guardian and guide, become scattered, and will sit so close as to admit of their being put up at the very nose of the pointer. It is at this point that the keeper discovers for the first time the character of the sportsmen. If gentlemen who have been frequently on the moors, the first shot will be directed against the old cock-bird by the gentleman on the right or the left, as shall be determined by the rise and flight of the bird. Again, the remaining shots will in like manner be directed against the outside birds, each gentleman taking care that there shall be no cross-firing, but that he shall confine his attention to the birds rising on his own side. If experienced sportsmen, the birds will also be allowed to fly a reasonable distance before the gun is lifted to the shoulder, so that while shot dead they shall not be unnecessarily cut up. They walk on slowly, keeping the birds always before them, taking care that every available bit of ground is carefully hunted, and that the dogs have sufficient time to quarter their ground. They are always ready, and when birds rise unexpectedly, owing to bad scent or other causes, they are not taken at a disadvantage, and thus a brace or two are generally added to the bag. When a single bird rises to the dog, as already indicated, it belongs to the sportsman to whose side it flies. We have often, however, seen a single bird rise and fly straight away without being fired at, neither sportsman wishing to deprive his companion of a shot. This, we consider, is studying etiquette a little too much, and ought to be remedied by an agreement that doubtful birds should be shot alternately. Care should be taken that the birds when shot are carried by the legs in the hands of the gillies for some time, so as to allow them to cool, and that they may be packed neatly and carefully into the panniers. This to some may not seem of any importance; but a sportsman only once requires to see the baskets emptied after a day's shooting, to notice the difference between birds carefully packed and those tossed in by a careless and inconsiderate gillie.

When the sun is at its height—generally about one o'clock—sportsmen usually sit down to lunch. A place is selected by the keeper in a hollow by some limpid mountain stream, and where there is a cool spring bubbling up from its channelly bed or gurgling from beneath its rocky bank. The relish with which sportsmen enjoy their lunch during

the glorious month of August in such circumstances is known only to those who have been privileged to realise it. The time allotted for lunch is generally not less than an hour, and, as a rule, is occupied with an agreeable chat; while among smokers "the weed" is sometimes profusely indulged in. The practice of imbibing intoxicating liquors while shooting is a very common and, in my opinion, a foolish one. Upon this subject I can speak from experience—having for many years been actively associated with shooting-parties on some of the most extensive and best grouse moors in Scotland, and having uniformly acted on the practice of abstaining from spirituous liquors. The result was in every respect most satisfactory. Not only was I able to undertake as much work as any others, but at night was less tired than those who indulged in strong potations. I usually took out a good lunch and a bottle of tea without milk, which helped to slake my thirst and make the lunch enjoyable. I was then quite fresh for the remainder of the day.

While cold tea is most enjoyable to those accustomed to its use, I confess there are others who regard it in a very different light. Mr Augustus Grimble characterises it as "that abomination." During my sixteen years' sojourn at Dalnaspidal it was the practice for one gun to be out early on the morning of the 12th, with the view of securing grouse for dinner on the arrival home of the shooting party. I was selected to hunt the dogs on these early morning rambles. Mr Blackley, a Glasgow gentleman—who did not go out during the day—was the shooter, and sat up to awake me at 1 A.M. After a cup of tea, &c., and accompanied by a gillie, we started, having half a mile to walk to the end of Loch Garry. We then got into a boat and rowed three and a half miles to the other end of the loch. Disembarking, we had about a couple of miles farther to walk to a commonty—now divided between Dunalastair, Auchlecks, and Atholl—arriving there before daylight. We usually sat down till it was sufficiently light to see, when a pair of dogs were let loose. Bagging ten brace of grouse and some hares, we hurried home, reaching the lodge at eight o'clock. My kennel of dogs and gillies had been sent on, and a seat kept for me in the carriage, which started at 8.30. The beat was seven miles' distance, and at about 9.15 we started on the moor immediately behind Dolnamein Lodge. With the exception of half an hour for lunch, I hunted the dogs, zig-zagging the moor the entire day till darkness was setting in, and did not reach the lodge till 10 o'clock. So much for "that abomination,"

and I question if Mr Grimble, with strong potations, could beat such physical performances.

This recalls an incident with the late Bailie Lewis, well known in Edinburgh as "a great teetotaller and a grand shot." He invited me to a day among the grouse on his shooting on the Lammermoors. We drove from Haddington—some ten or twelve miles' distance—in a hired vehicle, the driver of which had been on the spree for two days previously. After having the horse stabled, we set out for the moor. Mr Lewis sent the keeper with me to one side of the glen, while he, knowing the ground, utilised the drouthy driver for his gillie on the other. During the day the heat was excessive, with a blazing sun overhead. We sat down to lunch with the gillie, whose throat was literally parched, and his lips cracked and stiffened by the dreadful thirst occasioned by the previous debauch, and aggravated by the intense heat. Mr Lewis, with that pawky humour for which he was so well known, after a draught of tea from his flask, addressing his gillie, said, "Driver, would you like to have a swill from my flask?" He promptly replied, "Thank you, sir—I am dying *for something*; but you are far too kind, as it is not often brandy comes in my way." Holding the beautifully clear metal cup in one hand, he poured the red-coloured liquor from the flask. Glittering in the sun, the coloured liquid gurgled into the cup, resembling in reality genuine brandy. The liquor, as it was poured into the cup, had so whetted the appetite of the temporary gillie that he clutched it with a greedy hand, and in an instant it was being poured down the throat of the victim of that aggravated thirst to which happily even ordinary tipplers are strangers. The effect on the poor wretch may be conceived, but never adequately described. Handing the cup, with an evident feeling of disgust, and with an air of offended dignity, he said, "Ca' ye that brandy? I tell you, sir, it's the most abominable stuff ever crossed my craig, an' I have been dabbling in a' kinds o' drink for the last thirty years."

The changes that have taken place in the practice of grouse-shooting since my young days are almost overshadowed by the altered character of the luncheon. In these early days, sportsmen took a packet of sandwiches from the panniers, and these were washed down with "mountain dew," or as an American gentleman characterised it, "the wine of the country," diluted with water from a spring. Nowadays, the viands and delicacies brought to the moor, on a table spread in the

wilderness, would have made sportsmen of former days open their eyes in amazement. Bottles of Apollinaris or other mineral waters, and, frequently, hot luncheon and hot coffee, are considered indispensable. Such luncheons are hardly conducive to good shooting in the afternoon, and have a tendency to make the sportsmen sit longer than is warranted to make a heavy bag.

After an enjoyable rest—the duration of which may be extended should the heat of the day be oppressive—the party again fall into line and recommence their sport. For a little, unless fresh dogs are uncoupled, the pointers will appear stiff and rather lazily inclined; but if they have been brought into good condition before the season, they will, on finding game, be inspired with renewed energy. If fresh dogs are let loose after resting at midday, so much the better. Where this cannot be done, the dogs while resting may be indulged with a sandwich or a biscuit, as it is scarcely to be expected that a dog which is only fed each night—once in the twenty-four hours—however willing, can stand out without nourishment.

It is in the afternoon, when the sun is past the meridian, that the sportsman frequently finds exercise on the mountain-side or around the base of some heathery corrie most enjoyable. At the same time, it is generally from two to four o'clock that complaints of the scarcity of birds are most frequently made. How often has the question been put by gentlemen who are not mere novices in grouse-shooting—How comes it that it so frequently happens that there are so few birds to be seen at this time of the day? It is obvious that it is not because the birds are fewer in number upon the moor, but simply they are not to be found in the places where they are sought for. As previously explained, during sultry weather, and in the middle of the day, grouse, as an invariable rule, betake themselves from the high ground in large numbers to the banks of burns, or ground interspersed with bracken, bog-myrtle, &c. While good average sport may be relied upon, even by those not fully acquainted with the habits of grouse, during the afternoon, it is, as already indicated, when evening approaches that they can be more easily fallen in with. The scent at this time becomes better, and as the birds are scattered about feeding, they are more readily scented by the dogs. If on a beat near the lodge, and the wind favourable, sportsmen generally shoot homewards, and unless in view of some definite arrangements, will generally be guided by circumstances as

to the hour of their return. If engaged on a beat several miles from home, however, arrangements will have been made to meet at an appointed place at a given hour, where the car will be in waiting to receive them. Punctuality in such cases ought ever to be studied, so that everything like irritation and annoyance may be avoided, owing to any of the party being kept waiting—by no means an unusual occurrence. Attention to this simple rule will contribute in no small degree to the winding-up of an enjoyable day's shooting. At the close of such a day's sport as I have indicated, the trusty keeper will realise a sense of relief; while his duties, although arduous, will partake more of the nature of enjoyment than of toil.

In these days of increased Imperial and local taxation, and more especially during the world-wide war of 1914, 1915, 1916, 1917, and 1918, when numerous shootings did not find tenants, many Highland lairds had great difficulty in making ends meet. In such places as the Island of Lewis, the rent-roll was insufficient to pay the rates, and many of the best grouse moors throughout Scotland were unlet. Grouse are indigenous to the British Isles, and constitute a valuable asset to the country, especially north of the Tweed. The late Mr George Malcolm, who made a special study of this subject, and who was accepted as an authority second to none, stated that, including £34,166 for game, gun, and game-dealing licences, the average rents and expenses associated with shootings in Scotland amounted annually to very close on £2,000,000. The grouse is pre-eminently bound up with my happiest memories, and ever recalls the bracing breezes of the wild mountainsides, which for many years I experienced at Dalnaspidal, with its varied bird and animal life and wide expanse of purple heather. In this rapid age it is difficult to prognosticate what radical political changes may be in the womb of the future, but I venture to affirm that so long as the everlasting hills, with their purple heather, remain as they are, so long will grouse remain an important factor in the internal economy of the Highlands of Scotland.

No bird in this or any other country deserves to have so much care bestowed upon him as the grouse. His presence on our hills, besides giving healthy sport to many, adds in a remarkable manner to the incomes of proprietors. But landlords are not the only class who benefit by the bird in question. Crofters and cottars by the hundred find employment on the moors, getting good wages for themselves, and hire for their

ponies during August and September, and every old woman who keeps poultry obtains an enhanced price for eggs and chickens from the wealthy "Sassenach." The grouse, as already said, is an asset of our country of which the nation should be proud. One has only to visit Perth Station during the week before the "Twelfth," and see the numerous special trains going north, to satisfy himself as to the benefits that accrue to the various railway companies. Then the baker, the butcher, the grocer, the coal merchant, the fishmonger, and tradesmen in general, all benefit by the influx of wealthy visitors to our moorland districts.

Lagopus scoticus is an attractive and interesting bird from every point of view. Attempts have from time to time been made to introduce grouse into other countries, but, so far as I am aware, without success. When on a sporting tour in Norway, I learned that birds had been imported from this country on more than one occasion, but in consequence of severe storms they very soon disappeared. It must not be supposed that they succumb to the weather, especially on the West Coast, as our grouse are the most hardy of the feathered tribe; but their dark plumage during the protracted snowstorms peculiar to Norway attracts the attention of every passing bird of prey.

As grouse are occasionally decimated by disease on many moors, a trade sprang up for supplying grouse alive for restocking purposes. How these grouse are obtained has been the subject of much correspondence in the columns of the 'Field.' Proprietors whose estates march with small allotments found to their disgust that nets were placed round their boundaries, and that birds reared and protected on their property were captured in large numbers. To such an extent was this carried out in Cumberland and elsewhere, that some proprietors and tenants co-operated, and hung 9000 yards of nets round their ground to fight opponents with their own weapons. Circulars are sent out to owners and tenants of moors by the netting fraternity, painting in attractive colours the advantages of restocking, with the view of changing the blood. This is a plausible theory, but though I have known many moors "restocked," I am yet to be convinced that any good has resulted. When birds are turned down on a moor at a distance, marked by a band on their leg, it is surprising how few of them are ever seen again.

That grouse-shooting, which is regarded as the elixir of sport, will suffer from this mercenary practice, is incontrovertible. What, then,

can be done to avert the mischief is the question pressing for solution. Let sportsmen seriously consider the risk they run of buying the grouse of their friends or of brother sportsmen. That netting, as described, is extensively carried on in Cumberland and other counties is well known, but at the same time it is practised in Scotland to a much greater extent than most people imagine. The traffic in live grouse would cease if there was no demand for them. Even if the traffic in live birds should cease, it is to be feared that a system so extensively practised, and skilfully reduced to a science, may not be easily eradicated from the minds of the poaching fraternity. Though it is generally believed in Scotland that great benefits have accrued from importing Yorkshire grouse, this is, as yet, in a great measure a matter of speculation. In illustration of this, it may be mentioned that the tenant of a large moor in Perthshire turned down seventy brace of grouse from Yorkshire and Dumfriesshire. The first lot he marked with silver, and the others with copper bands. Only four of these birds were shot, and it was believed that most of them had left the moor. As will be evident from this and similar experiments, there is no guarantee that grouse taken from a distance remain on the ground. If only a couple of brace were killed, out of seventy brace, in five or six years, it is pretty safe to assert that most of them had left the district or been surreptitiously destroyed.

The Duke of Argyll—grandfather of the present Duke—attracted by a circular, ordered fifty brace, and Cameron, the keeper, a most careful and observant naturalist, took great interest in the experiment. He wrote to me to send bands marked "A" and the year, but unfortunately the birds arrived before the bands, and he had no alternative but to turn them out. He, however, according to instructions, cut an inch off the end feathers of one wing, and turned them out in Glen-aray, a deep glen they would not easily get out of. For some time after the keeper knew the birds by their peculiar flight, through part of the feathers of a wing being cut. Whether they stayed and bred will never, of course, be known; but the fact remains that, for quite a number of years after, grouse were not nearly so plentiful at Inveraray as they were the year the grouse were put down. This, of course, may mean nothing, but it certainly does not prove that any benefit resulted from the experiment.

I can remember how extensively disease prevailed on the Dalnaspidal moor in 1868-69. At that time the shooting extended seventeen

miles along the side of the Highland Railway, by seven or eight across. Cartloads of dead and dying birds were picked up and taken home in the panniers to be buried. As may be supposed, bags for those years were poor. The disease, however, ran its course, and in 1870 a fair amount of sport was obtained; 1871 was a good year, and 1872 was believed to be the biggest year on record. This was prior to the days of introducing fresh blood, but had a few brace been turned down from Yorkshire in 1870, what an advertisement it would have been for the experiment! No birds were introduced, yet, as will be seen, grouse in a couple of years increased enormously.

I am yet to be convinced that any good has accrued by importing grouse and turning them down on a moor. The fact of the quick increase at Dalnaspidal, as stated above, demonstrates that it could not be traceable to the introduction of birds. Another illustration in point: no "birds from Yorkshire," or anywhere else, have ever been turned down on the Duke of Buccleuch's extensive moors, yet, as is well known, they yield bags second to none.

In introducing a change of blood among grouse, I should prefer to transplant the eggs rather than transfer the birds. In the former case they are much more likely to remain, seeing they have been hatched on the ground. In Scotland recourse has in several places been had to rearing young broods by domestic fowls, as is now most extensively and successfully done in the case of pheasants. This experiment has succeeded beyond expectation, to my knowledge, in several places. That fresh blood can be introduced into a district without having recourse to such an expensive method as purchasing grouse at over a pound a brace may be easily demonstrated. The simplicity with which grouse chicks can be reared from eggs in the same manner as pheasants places this beyond the shadow of a doubt. Indeed, it is by no means uncommon for keepers to rear grouse in the same way. They are much more easily reared than pheasants—with the same food—and become more tame. When allowed out of the coop they will be seen feeding on bilberries, cranberries, ribwort, fern, bracken, &c. No doubt some difficulty may be experienced in procuring the eggs of grouse, though this difficulty is by no means insurmountable. There is no reason, however, why one proprietor should not exchange eggs with another at a distance.

A few years ago Tom Chisholm, a young keeper friend of mine, got a clutch of grouse eggs from a stalker a hundred miles distant. They

were lifted early in the morning, and seven hours intervened before they arrived at their destination, and were put under a hen. They were far advanced in incubation, and in a few days seven grouse were hatched. They were placed in a coop among the young pheasants in the rearing-field, and were fed along with the pheasants. A heathery turf was put beside them every day, and it was interesting to see them devouring the shoots. They were nearly the size of partridges when I saw them, and were exceedingly healthy and tame. The space in which they were confined was very limited, being only a coop and run used for rearing pheasants. One day when the coop was being moved a leg of one of the chickens got below it and was broken. The keeper, who is most intelligent, rose to the occasion. He made splints out of part of a matchbox, and bandaged the broken limb, with the result that in an incredibly short space of time the bird used it as well as ever. It, however, fell behind the others in size. Unfortunately, a rat burrowed beneath the run and destroyed three of them; but the keeper, being an expert at trapping, quickly avenged the death of his pets. The other four were long confined, and were as healthy and strong as if they were at liberty on the moor, though they had been months in close confinement. As is well known, the clutch of grouse eggs averages about eight. Incredible as it may appear, the four birds in question—all hens—laid a hundred and four eggs, or an average of twenty-six. Of course the eggs were lifted daily, and the birds kept on laying, as is the case with domestic poultry. We have here an interesting suggestion, which may simplify the stocking of grouse moors when decimated by disease. It must, however, be remembered that grouse, like partridges, mate from natural love, and it is necessary to ascertain that there is mutual affection. If a pair were put together which did not suit each other there would be no result. Beauvais, the Frenchman, began by doing this with partridges, and only obtained five to six coveys out of a hundred pairs of birds. He subsequently discovered, by putting a number together in a large enclosure with corners and nooks in it, that the birds separated into pairs. These pairs should be taken out and placed in a pen by themselves, when it will be found they will nest and hatch out a brood. In this way Beauvais got ninety-five coveys of partridges from one hundred pairs. As it is now proved that grouse will nest in captivity, there is no reason why success should not be obtained with them as well as with partridges. The eggs can

either be left in the nest or taken out to be hatched by domestic hens. If the eggs are removed, others will be laid, and thus a larger number will be secured. When the chicks are hatched, they should be fed for a day or two with pheasant food, then taken in a basket, separate from the old birds, and put together with them on the moor in a small coop with a sliding door. Some food should be scattered around, and after a time the keeper may draw the slide with a string from a distance. It was noticed that one or two of the grouse got quite broody, and sat on the eggs whenever they got the chance. On my recommendation, some grit was put beside them, and they were seen picking some of it. I have often been asked by owners of moors if they should put down grit for the birds, to which I replied, "Send me the gizzards of a few and I'll advise you." If these contain quartz, as is invariably the case, my advice is not to trouble, as the birds will find a sufficiency on their own ground. That grouse are prompted by nature to swallow quartz is indisputable, and that in the absence of teeth to masticate their food it fulfils a similar process by grinding it in the gizzard. I have often wondered if quartz or grit was absolutely necessary, and in 1915 had some grouse reared and kept in confinement, where they got no grit and never tasted heather, but fared exactly on the same food as pheasants. After being thus kept for many months in a pen ten feet square, they were quite healthy, and in the frosty autumn mornings interested the neighbourhood by their calls, which were as hearty and unrestrained as if they had been on the hillside among the natural heath.

A tame grouse, the result of an interesting experiment in natural history, was reared at Tulliemet, in Perthshire. Mr Young, the keeper there, reared some grouse, and, being a student of natural history, he took special interest in a young cock, with the view of making it a pet. It became quite tame, flying up and sitting on his knee without the slightest fear. "Jock," as he was called, strutted about the kennels like a barn-door fowl, eating maize from people's hands. Impelled by natural instinct, he secured a mate in the spring. Repairing a short distance to some detached clumps of heather, a nest was formed and eggs laid in it, and in due course the hen entered upon the process of hatching. "Jock" watched carefully near the place where his mate was sitting, never failing in his attempt to drive off any intruder. Going near the place one day, Mr Young was surprised to discover

that former friendship had disappeared, as "Jock" flew in his face and succeeded in drawing blood from his cheek. After successfully rearing the covey, "Jock" returned in the autumn, and again cultivated the friendship of Mr Young, who had him photographed sitting on his knee. Twice he paired, and kept guard over the nest where his mate was sitting, and seemed greatly annoyed when any one ventured to intrude near. On the second occasion I accompanied the keeper to the place where "Jock" was faithfully guarding his sitting mate. On the keeper calling out, "Are you there, Jock?" he readily responded from a distance of about a couple of hundred yards: "*Go back, go back, go back!*" saluted us, and immediately we observed the bird flying towards us. Alighting about twenty yards' distance, he approached us, his tail spread out, his wings slightly dragging on the ground, and his comb bright and extended to an unusual size. I stretched out my hand towards him, when in an instant he flew at it, striking a blow simultaneously with his wings and beak, which left a blue mark for several weeks. Not caring to expose my bare hand further to his attacks, I held out my cap, when, seizing it with his beak, he allowed himself to be lifted, and at the same time striking vehemently with his wings. In watching his movements it was interesting to note how he occasionally raised his head and scanned the horizon all round in accordance with the habits of grouse. Prior to the nesting season he was observed one day flying in an excited manner towards the kennel, and wondering what was the cause of alarm, the keeper, on looking towards the summit, descried an eagle flying in aerial circles hunting for his prey over a couple of miles distant. The report of a gun had no terrors for "Jock"; in fact, he seemed rather to enjoy it. Near his home on the moor is a mountain tarn, and butts are placed near it in which sportsmen conceal themselves in order to shoot ducks driven over them. On the occasion of a duck-drive, "Jock" was certain to be in one of the butts, as if he enjoyed the sport.

We hear a great deal nowadays of the destruction of old cocks being necessary, as they are so pugilistic, and drive young and better birds for breeding off a large amount of territory. With "Jock," however, it was the reverse, as, in seeking for a mate for the third time, he was driven off the moor by other birds, and had to content himself with a bachelor's life around the kennels. Like most pets, "Jock" met a tragic death. An old boiler, used as a watering-trough, was full of

water on which was a thin coating of ice. He had evidently settled on it, gone through, and had been unable to extricate himself. He was found drowned, and his loss was sadly mourned, as he had been a most interesting pet.

The pugnacity displayed by grouse at pairing-time has been frequently recorded, so that it would be superfluous to refer to it in detail. I have, however, watched them, and noted how they strike with their wings. The struggle never lasted so long as is frequently the case with pheasants, and it was interesting to watch the manoeuvres of both the victor and the vanquished. The latter would fly or run off, pursued by the former, and in some cases would retaliate and fight another round. If entirely driven off, the victor seemed immensely pleased with himself, and would strut about on a knoll till joined by the hen, who had been a witness of the encounter.

From observations made at Aros, in Mull, when my life-long friend, Mr Fraser, reared grouse by hand, and two cocks quarrelled, their mode of attack was carefully noted. They always neared each other with their wings grazing the ground and their tails spread like a fan. Getting close, they approached sideways, striking their opponent with the wing nearest it, then wheeled round and used the other. One frequently seizes its opponent with its beak, presses both feet against it, and strikes violently with its wings, uttering a defiant note not unlike the hiss of a goose.

Much can be learned of the habits of grouse by hand-rearing them, and if allowed to roam at large. The young chicks try to pull the shoots of heather as soon as they are able to run about, but are generally three or four days old before they have sufficient strength to pull much. Should a hawk appear in the sky, they utter a quiet noise sufficiently loud for the rest to hear at twenty yards' distance, and, as a rule, run to the nearest shelter to hide. If the hawk should be near, they may squat even on bare ground, and remain motionless in accordance with hereditary habit. This is the more remarkable in view of having no parents to guide them. I have frequently crawled near, and, unperceived, watched with binoculars a brood of grouse sunning themselves in a dry moss-hag. The dexterity with which the young chicks run after and capture flies and other insects was extremely interesting, and but for the knowledge of heather being their staple food, one might almost have been inclined to class them in the category of insectivorous



A gallant Father.

birds. The faithfulness displayed in guarding their young was apparent from the careful way in which the parent birds constantly turned their heads, scanning the sky, evidently afraid of the approach of a hawk. On one occasion a sea-gull was observed in the distance, and, by a warning kuk-kuk from the old cock, the chicks immediately disappeared. The cock bird—I could not see the hen—lay closely squatted, but his head moved round with the flight of the gull, and when it passed out of sight, he in his own language communicated the information that the danger was past, when insect-catching again commenced. It will thus be seen that grouse are careful and affectionate parents. Their habitat being among heather, the natural instinct of the chicks is to hide when the parent birds fly off on the approach of an intruder. The observer, however, will note how they circle round, alighting here and there on an elevated position, evidently to discover if the young are threatened with danger. I have witnessed a fierce encounter between a cock grouse and a pair of hoodie-crows when the latter attempted to approach the chicks. They were pretty well grown, having got their tail feathers, yet I felt certain that but for my approach the savage birds would have succeeded in their merciless work. One of them got its eyes on me, and gave a call to its mate, when they quickly winged their way out of sight. On going to the spot no grouse were to be seen, they evidently having concealed themselves among the heather; but the number of feathers strewn around indicated a severe struggle on the part of the grouse.

Reverting to the tame grouse at Aros, it was observed they were cleanly in their habits. If they see their own, or the droppings of other birds, near food put down for them, they shake their heads and walk away. Other chicks, at a distance of several yards, understand the meaning of this action.

It is surprising how jealous grouse are about another settling upon their constituted domain. While motoring with a gentleman down the side of the river Naver, in Sutherlandshire, in the month of April, we got out of the car and walked a short distance to look at a pool. On our way we startled a cock grouse, which flew across the river and settled. He was immediately pursued by another cock, and compelled to wing his way back to his own legitimate territory.

That a superabundance of cocks on a moor is detrimental must therefore be apparent. As is well known, the bag of grouse on some

moors has been doubled, tripled, and quadrupled since the advent of driving. The old cock generally leads the covey, and as he approaches the butts is consequently the first to fall. A heavy toll is also taken of old bachelor birds, as they generally come singly, which beyond question is to the advantage of the moor. On one occasion, when shooting "the black moss," on Mildren Moor in Forfarshire, I drew the high butt, which was among rocks well up towards the summit of Mount Battock. Nine single birds and two barren pairs came to me. I was fortunate in bagging the lot, and found that eleven out of the thirteen were cocks. Beyond doubt these old birds had been baffled in getting a mate, and had run the gauntlet of the butts in previous years, and thus sought for safety in the solitudes among the rocks above the heather. I had, however, missed most of the shooting, as a large bag was secured in the lower butts, one gentleman having only five cartridges left out of a hundred for the drive; but with my thirteen birds to thirteen cartridges, I must say I felt as if in that oft-quoted but rather vague locality, the seventh heaven.

It is possible that the shooting of cocks may in some cases be overdone. An illustration of this came under my notice some years ago. It was on one of the northern islands where grouse are fairly plentiful, though, of course, nothing like what is on the mainland farther south. The proprietor, being told that to burn the heather and kill the cocks is the secret of getting an increase in the number of grouse, he therefore gave a gentleman resident on the island permission to shoot cocks during the entire season. As grouse sit close on these northern moors, the result was that the place was practically denuded of cock birds. Whether hens had left the district in search of mates may be a controverted question. The fact remains that, when the shooting season came round, despite an excellent breeding season, grouse were exceedingly scarce, so much so that the proprietor had to refund part of the rent to the tenant.

I once put the question to a factor who was shooting "old cocks" in the month of November, in the interest of the moor, if he knew old cocks from young ones. Replying in the affirmative, a gentleman who was with us asked me afterwards how he could tell. I frankly stated that I could not discriminate between old and young as they were driven past in November, and was sceptical of any one doing so. A year or two after I met the keeper on the moor, and questioned him

about the shooting of the old cocks in November. His reply was that "if he could tell cocks from hens I would not mind so much."

Grouse become restless and unsettled with changes in the weather, and sometimes make it impossible for a sportsman to get within shooting distance. The reason of this is obvious, and especially if the day be wet. As already indicated, they instinctively get on bare "nobbies," where they can see the approach of men and dogs, and take care to make themselves scarce. A gentleman had arranged to buy a brace of pointers at a high price provided they were perfectly broken. He asked me if I would undertake to try them, and report if they were satisfactory. As it was near the 12th of August, I made inquiries for an unlet moor as near Edinburgh as possible. The nearest I could find was one three or four miles from Shotts Station on the Caledonian Railway. On arriving at the station, the district appeared the most unlikely place on earth for heather or grouse. Coal-mines seemed everywhere, and the furnaces belched forth volumes of dense black smoke into the already murky, smoke-laden atmosphere. After a half-hour's drive I reached a farm and an exceptionally nice bit of heather. Uncoupling the dogs, I quickly discovered they were perfectly broken. Again and again they were both pointing at different coveys at the same time, and the birds sat close. It was on a Saturday, which was the 7th of August, and telling the gentleman of the behaviour of the dogs and the number of birds I saw, he secured the shooting for the season. Certainly I could have bagged thirty brace of grouse with the greatest of ease. Being engaged in business, he could not leave till the following Saturday, which was the 14th, when he invited me to shoot with him. The heather was largely interspersed with grass, and as a drizzling rain had been experienced all the morning the cover was dripping, and it was impossible to get within a hundred yards of any birds. In point of fact we could see them making off at about three hundred yards' distance. Hunting on till after midday, the dogs indicating where coveys had recently left, we failed to get a single shot. I then suggested it was useless to proceed, but that the gillie and a boy who was with him might go to the march and walk towards us, while we concealed ourselves in a row of butts. After a few short drives we managed to secure nine brace, I once getting two at a shot; and, as may be expected, many coveys passed wide of the two guns. One thing was evident, that dogs were no further use on

that moor for the season. An average bag was subsequently secured by driving, but had the weather kept dry there is no doubt but a good bag would have been got the first day over dogs.

Though the feet of grouse, through the development of the hind claws not being strong enough, are not adapted for sitting on trees, still I have on several occasions seen them do so. Once, when shooting in Berwickshire on a small moor, I had some birds driven to me. Seven flew close past, and I secured a brace. The remaining five flew on a short distance, and settled on a hawthorn-tree adjoining a turnip-field. This being unusual, I watched them for a considerable time, and observed them picking the haws off the branches. They are also fond of rowan berries, and may frequently be seen on the trees devouring the rowans with great gusto. Once, while driving in a moorland district in Kirkcudbrightshire, I observed birds sitting on willow-trees by the roadside. On getting near I saw they were grouse, about twenty feet from the ground. They seemed quite at home, and allowed us to drive close past them.

Why grouse are more wild on the moors in England and the southern counties of Scotland than they are in the northern Highlands is a subject upon which there has been much discussion. It is a fact that in Caithness, Ross, and Sutherland they will sit to dogs all through September, and, in some of the outlying islands, practically the entire season. In the south of Scotland, or in some parts of England, if the weather be fine grouse may, to a certain extent, be shot over dogs; but with the first day's rain pointers may as well be shut in the kennel for the remainder of the season. At this season the growth of grouse is exceedingly rapid, and every day they become the more able to take care of themselves, and with wet weather good-bye may be said to shooting over dogs. Guided by strong natural instinct, grouse are remarkable for discrimination in their selection of places suitable for their concealment. For example, on white bent ground, notwithstanding that the cover may be sufficient to conceal them, they do not squat as they do in heather. They seem instinctively to know that their dark colour would be easily observed among the light bent. Some account for their being more wild in the south by shepherds being almost constantly on the moors driving sheep to and fro, and thus disturbing them. This explanation is inadmissible, as in many places in the north, even in Caithness, shepherds are as

much on the moor as in the south. A more probable solution of why grouse are less wild in the northern counties may be found in the fact of so many deer-forests existing in them, where the hawk tribe are allowed to harbour and breed without restraint. Those who have witnessed grouse run to hide when an eagle or hawk is observed in the sky, it may be a mile distant, must be convinced that these birds regard themselves as safer in concealment than on the wing.

Owing to the difficulty in approaching grouse on level moors, driving the birds to the guns is now very generally resorted to in most parts of Scotland. About what time the present system of grouse-driving was first inaugurated is difficult to say. My earliest recollection, some time in the fifties, is of pits sunk and rush-bushes planted in front of them, over which a few grouse and black-game were generally secured on a small moor at Middlethird in Berwickshire. Standing behind stone walls and having birds driven off stubbles was then also in vogue, and no doubt similar devices were resorted to long before my day. George Sykes, gamekeeper to the late Mr Henry Savile at Ryshworth, in Yorkshire, is credited with being a pioneer of grouse-driving and the erection of butts. I never knew George, as he had died before I happened to be there, having been found dead in one of the butts of his own construction. I was, however, frequently there loading for my old master, the late Mr Little Gilmour, when George's sons, Samson and Ben, were the keepers. This is now ancient history, but it was somewhere about the time that Mr Savile won the Derby with Cremorne. However great an authority George Sykes was in regard to grouse-driving, his butts would not be tolerated at the present day. I well remember standing ankle-deep in mud, which made it difficult for sportsmen to turn round and shoot birds behind.

One of my recollections of the shoots at Ryshworth is that of a beater who went under the *sobriquet* of "five pints." Hearing some one calling to him by that name, I naturally wondered why he had earned such a title, and learned he was a jobbing gardener who demanded a pay of so much money and five pints of beer daily.

Though grouse-driving was successfully practised in England long before it became general in Scotland, it is nowadays resorted to on most moors. After being at Ryshworth and Keld Green, near Richmond, in Yorkshire, in 1870, the following year, when at Dalnaspidal in Perthshire, I suggested trying a drive. It had been a wet morning,

but had cleared up after midday. My request was quickly acceded to, and after lunch a drive along the steep face of the "Sow of Atholl" was arranged. It was not a success, as the hill being very steep the birds flew out from it, and consequently beyond reach of the guns. The bag was therefore small, and it was argued that the level moors in Yorkshire were different from the mountainous district of Dalnaspidal, where driving could never be a success. I maintained, however, that though the birds flew high they must lower somewhere, and affirmed that there would be the place to conceal ourselves. Driving the hillside in question from the opposite direction, we soon discovered that the shoulder round into the mountain-face which overshadows Loch Garry was the place to erect butts. Procuring webs of tweed cloth the colour of heather, with the aid of wooden poles we extemporised hiding-places, and made experimental drives over the ground with wonderful success. The following year butts were to be erected, and we had Ben Sykes up from Ryshworth to render assistance. We learned, however, by subsequent experience that many of the butts had to be shifted.

I am one of those who believe that any moor can be driven. It may not be successfully accomplished at first, but, by an intelligent study of the contour of the ground and the flight of the birds, success can generally be attained. Once when shooting with the late Mr Cadwalader of New York, on St Fillans Moor, overlooking Loch Earn, some guns were invited to assist in a grouse-drive on Ardvoirlich, the other side of the loch. Forming one of the party, I found it the most difficult shooting I ever experienced. The birds, aided by a good breeze, came round corners of the mountain like lightning, and though one could be secured in front, to turn round and kill another behind was very frequently a failure. How difficult they seemed to be as contrasted with those in Yorkshire!

Much diversity of opinion exists in regard to butts and the distance they should be apart. Beyond all question, where drainage can be accomplished, sunk butts are best, and should be buttressed up in front with turfs of growing heather or grass, as the case may be, in order that they may be as little conspicuous as possible. I care not whether they are round or square, but certainly they should be built on all sides with a narrow passage for entrance, out of the prevailing wind. Every sportsman knows the value of this, as in wet weather with a



Well killed in front.

cold wind the discomfort in an open butt is extreme. Gentlemen, frequently warm with walking uphill, and afterwards standing it may be for an hour exposed to a biting wind, are very apt to get a chill. One of the finest gentlemen and sportsmen I ever knew contracted a chill when grouse-driving, which, alas! had a fatal termination. It is between the shoulders that a chill becomes dangerous and causes pneumonia. The advantage of shelter to the shoulders must therefore be apparent. In good well-built butts wire sheep-netting to surround them will be well-spent money.

In regard to the distance butts should be apart, it depends on ever-varying circumstances. Where birds can be concentrated into a narrow compass, the closer butts are the better. Where, however, there is a long hill-face; where £ s. d. has to be considered when engaging beaters; where there is a difficulty in procuring them, and especially flankers, butts may be farther apart, even at the risk of birds flying between them out of shot. If money is no object, and a sufficiency of drivers and flankers can be obtained, a proper distance should be that birds pass within forty yards of any gun at a safe distance before it gets into line with the next butt, or after it has passed. This necessitates butts being considerably under eighty yards apart.

Burning heather closely for fifty yards behind the butts, in order to facilitate the picking up of the birds, is generally recommended. Certainly it simplifies the pick-up, but it is not in all cases advisable. At Fettercairn and elsewhere some of the butts are placed on such rocky ground that many birds burst with the fall. The heather is therefore left rank, which softens the fall. When heather is burnt behind the butts a strip of heather beyond the bare ground should be left, and behind that again another burnt strip. Winged birds will run into the cover and hide, but are not likely to cross bare ground out of cover.

When the wind is in their favour grouse fly with amazing rapidity after they are fully matured. In every case sportsmen should endeavour to shoot in front if at all possible, though I have often been interested in watching the cool business-like way some gentlemen, when a covey approaches, take their first bird in front, turn round, and secure the second behind. In grouse-driving the length of the drives depends a good deal on the nature of the ground. I do not approve of too long drives, as every one who has had experience must have noticed that birds driven forward soon after the drivers start are

apt to settle before passing the butts. In such cases they act the part of decoys, and other birds coming forward frequently alight beside them. The result is that, hearing the shots and being within sight of the butts, they see the movements of the sportsmen as they stand up to shoot, and frequently prefer to fly back over the heads of the drivers or flankers rather than face the guns. It is most tantalising to see a covey settle, say, a couple of hundred yards in front, and others coming forward and settling beside them. In such cases I invariably



Grouse settling in front of Guns. (These birds will all go back.)

try a shot to put them off, in order to prevent others being attracted to alight.

The numbers of beaters and flankers required vary according to circumstances. Where money is no object a double set of drivers are employed, as at the termination of a drive they are ready to start so soon as the guns are seen into the butts, while those engaged in the recent drive go on to be ready to start another. More drives can thus be got, and of course by this the bag is largely augmented. The best



Down the Line.

results I ever saw with few beaters was at Keld Green in Yorkshire, already referred to. There were only eight drivers, including flankers, yet birds came forward in fine style. A lady "sportsman" was one of the party, and it was interesting to watch her fetching her birds down. It was somewhat late in the season, and as is well known, fewer drivers are required than when early, birds not being then so wild.

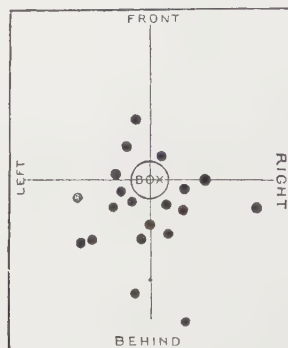
The drivers should advance in crescent form, so that by those on the right and left wings the birds may be prevented from breaking off at either side. Each driver should have a flag tied to the end of a bamboo pole, and wave it when he observes birds rise. Grouse, being quick-sighted, are not slow to perceive this, and as a matter of course generally fly in the opposite direction. Flankers placed in suitable places on either side should be as much as possible concealed, and never show themselves so long as birds are going right. Their duty being to guide grouse over the butts, they must ever be on the alert, and should birds be flying towards them, they must jump up suddenly and wave their flag. The sudden surprise causes the covey to swerve, and very frequently is the means of them flying over the guns. A good flanker is invaluable in grouse-driving.

Once when shooting on the Milden Moor in Forfarshire, I happened to be the flank gun, when I observed a large covey in the distance coming forward. As they came nearer, however, it became apparent they would not come over the butts. They were winging their way to my right, so that they would not have come within two hundred yards of me. Suddenly a flanker sprang up from among the heather waving his flag, when the birds got such a scare that they swerved, when two of them cannoned with such violence that they both fell lifeless to the ground. The covey afterwards slanted down the line, and other four fell victims to the guns. A flanker standing full in sight holding up his flag is of little use.

By driving birds often, they find out the danger of passing the butts, and thus learn to fly shy of them. In like manner, I have seen the devices of the Highland poacher or mercenary game-killer defeated by the birds becoming wary, after they had unsuspectingly suffered, by his cart or trap being driven a few days in succession along the moorland highway.

In the excitement of watching the birds coming, and shooting, it is rather difficult to note where they fall, particularly if many are down.

If, say, a dozen are down all round the butt, and the heather anything rank, it is no easy matter to have them all picked up. The loader should have a slate or card with a plan of the butt, on which he will mark down the number of birds killed, and if near the butts or far away, thus:—



I have found this of great service, as by making a mark for every bird that is killed, it not only records the number, but is a guide where to look for them. Of course there are numbers of winged birds which no one expects to find just where they fall, and it is here the services of a good retriever are requisite. Should it be on a crack moor where birds are plentiful, a loader has no time to watch and mark those that fall to the gun. It is therefore necessary to have a marker in the butt to record this.

At a grouse-drive on the Pentlands a winged grouse was lost as described. There were some beautiful retrievers at the shoot, including my own, but every one of them failed to find the lost bird. Fernie, the keeper on the ground, had a dog of a nondescript breed, which Burns would have characterised "a tinkler's messin." The question was put to me, what breed did I think it was, to which I replied that that was a poser, though as near as could be guessed it appeared to be about forty-second cousin to a clumber spaniel. As already said, the four or five retrievers had failed to find the bird, and when Fernie returned from a long distance where he had gone to pick up a towered grouse, he told his dog to "seek dead." Little attention was paid to it, but it was noticed between two and three hundred yards off evidently following a trail, when it got out of sight. We had started, and were wending our



Two at a Shot.

way to other butts, when the dog appeared with the winged grouse. Pedigree in dogs is not everything.

It is specially important that the sportsman takes care, when in a butt, that the barrels of his gun be kept out of sight, as they glitter and flash in the sun like a mirror, and can be seen at a long distance. Grouse are not slow to discover any movement in the butt, when they will to a certainty fly shy of it. Of course butts, as already said, should as much as possible be out of sight of the approaching birds, though this cannot always be arranged. Where the nature of the ground will admit of it, sunk butts, as already said, are preferable. While grouse are ever quick thus to perceive danger, it is remarkable how indifferent they are to the report of a gun so long as the person using it keeps out of sight. Those who conceal themselves in corn-stooks, and await the grouse coming from the moors to feed, often get several shots before the covey takes wing. The effect of the first shot or two only makes them put up their heads and look round, or fly on to an adjoining stook, and when they see nothing they will frequently recommence feeding. While comparatively indifferent to the report of a gun, grouse are not slow to discover any movement that is not studiously concealed. A couple of inches of the top or peak of a dark shooting-cap, or the slightest movement of the muzzle of a gun, startles them effectively. This quickness to detect danger by sight is the peculiar instinct of the grouse. Were it not for their quick-sightedness, more particularly at that season when driven by hunger to the corn-fields in immense packs, it is easy to see the risk they would run of being exterminated in those parts of the country where moorland is partially cultivated.

In 1918 the beautiful weather prior to the 11th of April was the best spring for heather burning I ever remember of. The Board of Agriculture, however, allowed burning long after the usual legal time, with the result that incalculable destruction was done by nests being burnt over. I was asked to look over and report on the damage done on a small moor in Peeblesshire. Though it could have been judiciously burnt in a couple of days in the fine weather that prevailed prior to the 11th, yet it was the 21st before it was set alight and allowed to burn itself out, thus destroying a large portion of the best part of the moor. In traversing the burnt portions I found the eggs of sixteen nests that had been destroyed by the conflagration, a species of devilishness which could only be equalled by marauding hooligans.

On wet and marshy moors water is generally let off by surface drains. These, as a rule, are dug by contract, and the interests of the game are never taken into consideration. As grouse chicks frequently get into and are unable to get out of these pitfalls, it is the duty of all keepers to have the banks sloped down every dozen yards or so, in order that young grouse may effect their escape.

Once, when going to a distant beat at Dalnaspidal to break some young dogs, I had to cross a mountain-ridge which necessitated a long climb. When well up and near a sheep-drain in a damp hollow a brood of very small grouse attracted my attention. A severe thunderstorm came on, and as there is no protection in that wild and mountainous region, I got a drenching. On my return I found five of the tiny chicks which had been drowned in the runnel and washed down to where the ground was level.

Continuous rain for several consecutive days often proves disastrous to young grouse. When fully matured the grouse is one of the most hardy of the feathered tribe—it can endure any amount of cold; but young birds are very apt to succumb when exposed to several continuous days of wet and cold. This is more especially the case when the chicks are a considerable size and the mother bird unable to cover and protect them from the inclemency of the weather.

Though excessive rainfall is not conducive to the successful rearing of grouse, still good sport is frequently got after wet summers, though there may be exceptions. Mr Colquhoun in his fascinating book, 'The Moor and the Loch,' says: "Protect as strictly as possible, and kill every rapacious bird and beast on the ground, there never could be half so many grouse reared in the west as in the north or central Highlands; and the reason is the humid climate prevents it." This may to a certain extent be true, but I fear there are other agencies at work. Wherever you are near the coast there are hoodie-crows and black-backed and other gulls which take a heavy toll of grouse eggs and chicks. Grouse are plentiful in Ayrshire, Wigtownshire, Kintyre, Arran, and elsewhere, though perhaps not in the same numbers as in those districts where the management of moors and the destruction of vermin are skilfully reduced to a science, with immunity from the ravages of the gull tribe.

Like most other malignant and fatal maladies which affect either the human race, the lower animals, or the finny tribe, the grouse species are no exception, and are frequently decimated by that terrible scourge

commonly called "Grouse Disease." When this insidious malady first made its appearance is somewhat shrouded in mystery. The late Mr Colquhoun, already referred to, whose long experience as a sportsman entitled his opinions to respect, wrote that the first appearance of grouse disease was in 1822. Years before that, however, it was recorded in the 'Sporting Magazine' that "an extraordinary disease has lately spread more havoc among the grouse in the north of Scotland than the double-barrelled guns of the numerous sportsmen. The birds are found dead on the hills in great numbers, and in a state of extenuation, as if they had perished from hunger." While, therefore, no doubt exists as to the prevalence of grouse disease prior to 1822, it had not attracted special attention. Possibly this may be accounted for by the lack of interest then taken in such matters, and from the means of disseminating knowledge being at that time much less than they are now.

I am aware that many sportsmen have become heartily sick of this interminable subject of "grouse disease." At the same time, so long as those mysterious forces which create or contribute to the development of this terrible scourge are undiscovered, there is no reason why the investigations of naturalists and scientists should not continue to be prosecuted. I am free to admit that I know no subject upon which so much has been written to so little purpose. Still, living as we do in an age of inquiry, it would be unwise to accept the inevitable and desist from further investigation. That the epidemic in question has an origin in certain conditions is a palpable truism. Whether that origin is to be found in any of the numerous theories propounded, or in any other cause not yet alleged or suspected, is, I contend, a proper subject for most searching and persistent inquiry.

I was highly gratified in the summer of 1904 to learn that a Grouse Commission had been appointed for the investigation of the disease, and I hoped that the problem would be solved that had set at defiance all human skill for the last half-century. The thanks of all sportsmen and naturalists are due to Lord Lovat, to whom we are mainly indebted for the appointment of the Committee, and for his selection of the other members, all of whom have studied grouse from the "cradle to the grave," or rather, from the egg to the oven. A scientific staff was appointed, and the Committee set to work in 1904, and published their Report in 1911.

While the fearful prevalence and fatal consequences of the grouse

disease admit of no dispute, the theories as to the cause of it in the past were to a large extent a matter of surmise. The most popular and probable explanations assigned as the cause of this vexatious calamity were "parasites," which, it appears, still hold the field. "An excessive consumption of corn by grouse" has also been set forth as a cause, it being remarked that grain is not a natural, but an artificial, diet for the grouse species. Frosted heather has also been assigned as a cause of the grouse disease. Any one who has witnessed heather killed by frost will at once think this is a most plausible idea. When we take into consideration, however, that heather which has been killed by frost and entirely divested of its nutritive qualities is about the most unlikely thing for grouse to feed upon, and having examined the crops of many dead and dying birds picked up without finding frosted heather, but fine green healthy heath, this theory must be dismissed as unsatisfactory. Overstocking has been submitted as another solution of the vexed question as to the origin of the disease. However reasonable this theory may appear, it is nevertheless liable to objections which divest it of much of its importance. It is easy to understand why the disease should so prominently obtrude itself and prove most fatal in its ravages on a well-stocked moor. The very fact that it is well stocked, and that the birds are plentiful—apart from any other consideration—necessitates this. If the theory in question was to be accepted, how are we to explain the circumstance that in those tracts of country, and on those moors where heather-food is abundant, but where the stock has been kept at a minimum, disease was as virulent and fatal as where the birds have been by natural and artificial facilities fostered and encouraged to the most extreme limit? Another theory was the alleged disturbance of those laws in the animal kingdom whereby the balance of nature is subverted by the wholesale destruction of winged and ground vermin by gamekeepers and others. This is a very plausible theory, but the fact of disease raging rampant in deer-forests, where birds of prey and four-footed vermin are fostered and encouraged, proves that it will not stand the light of searching investigation.

Setting all theories aside, the Committee entered upon their duties with "a clean slate." "A full, impartial, independent, unbiassed, reasoned, and exhaustive presentment of the whole matter as it has been disclosed to them after a long and searching inquiry," is embodied in their Report. Dr Shipley of Cambridge, one of the scientific experts

in the inquiry, stated that in the study of grouse disease "our starting-point should be the normal, the healthy; yet until lately no one has studied the *healthy* grouse, and, indeed, it is almost impossible to find a normal grouse, *i.e.*, one free from parasites. A grouse cannot express to us its feelings; the state of its tongue, the rate of its pulse, even its temperature tell us nothing, because we have no norm and no means of estimating the extent to which a diseased bird has departed from the standard of the healthy grouse. As regards the cause and symptoms of the diseases affecting grouse already noticed, it was, of course, known that in suffering birds there is a loss of activity, their flight is slow and limited in length, their call becomes feeble, their feathers lose lustre and become ruffled, the eye is dimmed. But these external symptoms may be associated with several diseases. Nearly all of them occur in the two diseases (*Trichostrongylus pergracilis* and *Coccidiosis*) which are responsible for the greater number of deaths among grouse."

Dr Shipley is in error when he says "until lately no one has studied the healthy grouse." It is now half a century since I wrought in conjunction with the late Mr A. B. Stirling, assistant-curator in the Anatomical Dissecting Room of the University of Edinburgh. I lay no claim to being a scientist, and my part in the inquiry was procuring the specimens, which I had abundant opportunities of getting. Mr Stirling laid claim to discovering "grouse disease," or in other words *strongyle*, in the *cæca*. I well remember his showing me the mass—millions, he said—of parasites, which some one said resembled "wool," in the appendices, but which with the naked eye I could not discern individually. Placing some of them between slides, and with the aid of the powerful microscopes, I could see them, the females with eggs in them, the same as is so beautifully portrayed in the magnified illustrations published in 'The Grouse in Health and Disease.' It may be mentioned that the late Sir William Turner also took part in our investigations. After supplying Mr Stirling with diseased birds, both living and dead, he requested me to try and get some healthy birds for purposes of comparison. As grouse were not shot in Strathconan Forest, and as there was no disease there at the time, I procured some from my friend Dougal Campbell, stalker to Mr A. J. Balfour. A limited number of strongyle was discovered in them also.

Years before that the late Sir Henry Littlejohn, the late Dr Thatcher, and that well-known sportsman and naturalist, the late Bailie

Lewis, investigated the grouse malady, and on application to the then Duke of Buccleuch—grandfather of the present Duke—got healthy specimens.

At page 300 of the Report it is stated: "It must be remembered that strong wild grouse are difficult to catch." Never was there a greater fallacy, as for many years they have been caught in hundreds, and sold to restock moors where birds are scarce.

Dr Shipley tells us that "the scientific members of the inquiry have recorded eight different species of insect or mite living either amongst the feathers or on the skin of the bird, or in other ways associated closely with the grouse, and no fewer than fifteen animal parasites living in the alimentary canal, the lungs, or other organs." My conscience! That, along with the magnified illustrations of the hideous-looking creatures, with their jaw-breaker names, are enough to "scunner" any one from ever eating grouse again.

I have frequently noticed grouse sitting on splendid clutches of eggs, and everything so far indicating a good hatching season, and excellent sport on the "12th." Disease, however, was about, and though it was subsequently discovered that every egg had hatched, the chicks were never observed, though carefully sought for. According to the Report of the Commission, this is traceable to coccidiosis, and in a footnote at page 236 it is stated: "The number of grouse chicks dying of coccidiosis on the moors is not easily estimated, for the chicks die in the heather, and their tiny corpses are rarely found." That is exactly my experience, but the fact remains that whatever was the cause of death, it was in those seasons when strongyle were found in large numbers in adult birds.

Though the Report gives us much valuable information, and affords most interesting reading, still it has not put us much "forrarder," as the question still remains to be answered, *Why the parasites?* Darwin, in his 'Origin of Species,' says that "some of these so-called epidemics appear to be due to parasitic worms . . . and here comes in a sort of struggle between the parasite and its prey." Alas! we are too well aware that the parasite is the victor, and the grouse the vanquished. I have never been able to ascertain if grouse, once stricken with the malady, ever recover. It is now over forty years since I sent diseased grouse to the late Dr Andrew Wilson. On one occasion I sent him two living birds which did not seem to be far advanced with the disease. I put in

the box a large quantity of heather, and the doctor wrote me some time after that he thought they would have recovered, but when they had devoured all the heather he had to kill them. I have ever since regretted this, as I could have sent any quantity of heather, and, moreover, grouse eat grain quite well in confinement.

The Report of the Grouse Plague Commission was issued in 1911, but all its recommendations were of no avail in saving grouse from the mysterious pestilence. On a splendid grouse moor in Dumfriesshire, the year after the Report was published, far over a thousand brace were killed in a day. It is one of those moors where everything has been done that can be done conducive to rear a large stock of grouse. But what are the facts? In 1913, disease swept across this and surrounding moors as a fiery scourge, leaving nothing but death and desolation in its trail.

In the season of 1912, I was invited to shoot on a small moor near Langholm. Grouse and black-game were very plentiful, and splendid bags were secured. The following year it was unshot in consequence of the scarcity of birds through the subtle and insidious nature of the malady.

When stalking in 1915, on the northern end of the island of Jura, I never saw a living grouse, but picked up a number of dead ones. I brought one home and had it examined, with the usual result—*strongyle* in the cæca. Grouse never seem to increase there in large numbers, a hundred and sixty brace on 11,000 acres being about the maximum in a season. Of course I am aware that as deer increase, grouse decrease, and there are large numbers of deer on the ground. If there was one spot in the country where I would expect to find immunity from disease among grouse, it would be at Ardlussa in Jura. Vermin is there kept down and heather burnt by one of the best keepers I know, beautiful young heather is in abundance, and the hills well supplied with water; yet, as has been shown, disease and death most fatally prevailed. While the recommendations of the Committee should certainly be acted upon, it is feared that the cause of grouse disease is yet shrouded in mystery. If it be thought otherwise, it may be asked, Why should it have raged so fiercely and fatally, immediately after the Report was issued, on those moors in Dumfriesshire where management has been skilfully reduced to a science? Again, as has been shown, why should it have practically cleared grouse out of Jura, where beautiful young

heather is abundant, and where from its isolated position there is little chance of birds reaching it from an infected district?

While the Report of the Grouse Commission makes many suggestions, some of them being largely speculation, the word "probably" frequently appears. If, as is suggested, it is after heather has been blighted by severe weather that birds become reduced in condition, the struggle between the parasite and its prey takes place. If such should be the case, might I venture to suggest that in those seasons grouse should be artificially fed as in the case of pheasants? There are few moors where spots of some acres could not be cultivated. If this was done, sown with oats, and fenced to exclude sheep, the result would be interesting. In such places the crop should be left for the benefit of the grouse, and they would visit these places so long as a grain of corn was to be picked up, and long after. In severe weather, or when heather has been blighted by late frosts, hand-feeding at such places might be resorted to. What is a few tons of maize to moors which realise one, two, three, or four thousand pounds of annual rent? I may be wrong, but I cannot divest my mind of the deep-rooted conviction, that if an experiment in this direction was carried out for a series of years over the usual cycle when disease makes its visitation, much good might result. Grouse, I know from feeding hand-reared birds, devour maize with great gusto. The Report, however, at page 177, says: "They must have grit, for without grit it is almost useless to put down corn." I have never yet examined the gizzard of a grouse without finding grit in it. No doubt in hard frosts grit will be difficult to pick up, still they do find it—at least I have never found a gizzard without it, and have had them examined in hard weather for the express purpose. Even assuming that grit is indispensable along with maize, it would be a simple matter to scatter the two together. If in hard weather grouse have a difficulty in procuring grit, the same remark must apply to pheasants and other birds. As far as I know, no evil results have occurred among pheasants from devouring maize in protracted storms.

In some parts heather has of late years suffered from havoc committed by the "Heather Beetle." When observed, burning is the only remedy.

CHAPTER V.

PTARMIGAN AND MOUNTAIN-HARES.

PTARMIGAN and Alpine hares are generally associated with high mountains. To reach the haunts of the former usually means long walks on painful steepes. No sport is more exhilarating and truly enjoyable to those of robust constitution and who enjoy active manly exercise on the mountain-tops. It seems scarcely necessary to remark that mountain-hares are frequently designated blue or white hares, in consequence of their changing from the blue or slaty colour in summer to the pure and almost spotless white in winter.

While the high and rocky beats which constitute the habitat of the ptarmigan and mountain-hare afford good sport for the single sportsman or a select few, they are more generally approached by a large party, consisting of sportsmen, gillies, and shepherds. In such circumstances a carefully-planned programme is drawn up, and when scrupulously carried out, as a general rule results in slaughter on an extensive scale, without that enjoyable excitement which arises from the continuous exercise of both the mental and physical faculties. Without attending to certain precautionary measures, a source of danger to health may be encountered by the sportsman not having sufficient time to reach the "pass" to which he has been directed. The consequence is, that ere he has reached the "pass" and had time to conceal himself, the hares are seen running up in advance. This causes him to hurry on to the appointed spot, where, drenched with sweat, and it may be in the face of a cold wind, he sits down among rocky boulders, and in the excitement of watching the hares forgets the chilling atmosphere generally prevalent on the mountain-tops, even when nothing of the kind is experienced on the low ground. It ought, therefore, to be emphatically insisted upon that the drivers are not allowed to start till the sportsmen are stationed along the ridge,

some of them far ahead in the principal "passes" of the hares. In consequence of this precaution being neglected, many splendid drives have been bungled, and instead of proving a source of enjoyment, have led to nothing but irritation and disappointment. The best way to avoid this is for the keeper in charge to regulate the movements of both sportsmen and drivers by fixed time. Being familiar with the ground, he should know somewhat accurately how long each sportsman should take to reach the "pass" or summit assigned to him. The surest way to avoid all blundering by prematurely startling the game, is for the keeper to fix the time when every man must be in his place and when the drivers shall start. This simple rule being observed, cannot fail to give satisfaction to every one and ensure a successful result. If the keeper thoroughly understands his business, he will take care to select a calm day and when the breeze—always prevalent on the mountain-tops—is in a favourable direction. Without this the drive might prove a comparative blank, notwithstanding the abundance of game—hares and ptarmigan being almost always on the lee side of the hill.

When there are sufficient sportsmen, it is well that one or two guns should keep moving forward above and a very short distance in advance of the drivers—not so far in advance as to disturb the flight of the ptarmigan or the advance of the hares, nor so far in the rear as to allow the birds to cross out of range. Those sportsmen who occupy this position will frequently have better sport than those who are in ambush, more especially as they approach the end of the beat, where many of the hares and even birds will prefer to turn back or aside, rather than face the fire and smoke in advance. As the drive proceeds, considerable intelligence is necessary. Those who stretch towards the bottom of the hill ought to be always considerably in advance; in short, the beaters should approach somewhat in crescent form, so that every inducement should be presented for the game to take to the rising ground. Those lowest down should by shouting and whistling make the most noise, taking care not to go so far in advance as to run the risk of the game running or flying back.

The nature of the mountain-hare being instinctively to make for the tops of the hills, and such being also, although to a lesser extent, the habit of the ptarmigan, the exercise of ordinary intelligence will rarely fail to accomplish satisfactorily the desired result. While collies and dogs of any description are useful in such expeditions, it is imperative

that they be kept always under command, otherwise they may prove a mischievous and intolerable nuisance. It being a habit of the mountain-hare, after being started, to run one or two hundred yards, and then, kangaroo-like, sit on end and look back upon the drivers, the temptation for dogs to break off in pursuit is great; and if one dog is allowed to break off, the likelihood is that others will follow, when, it is needless to say, the carrying out of the programme will be seriously interfered with.

The number of hares which have been killed under such circumstances as I have described on some of the mountain-ranges of the Grampians is incredible. I have occasionally found myself placed in the front of a cairn of stones or ensconced among some huge grey boulders in connection with such expeditions, while a number of guns were placed on each side of me. As the hares came cantering up, occasionally sitting on end with pricked ears listening to the discordant sounds which proceeded from beneath, I have not been able to charge my breech-loader with sufficient rapidity to prevent large numbers from making their escape. I have seen as many as six and eight approaching all within shot at the same moment, while others followed in rapid succession. The rattle of the fowling-pieces along the ridge, the tumult and yelling of the beaters as they approach, and the clouds of smoke along the summit, all contribute to a scene which will not readily be forgotten by those who have witnessed it. More than once before the drive was completed, I have felt the barrels of my gun so hot by incessant firing as to render its continued use somewhat inconvenient. Much of the individual success in such expeditions depends upon the sportsman securing a right position, and maintaining it till the drivers are within gunshot. Many commit the mistake of getting behind the cairn and firing past the sides, thinking they are thereby not so easily discovered. When the dress is of grey tweed, and closely resembling the granite cairn or boulders, I would recommend that the sportsman place himself in front of the cairn; and if he is able to sit still, making as few movements as possible, he will be far less likely to be discovered. That his movements may be as few as possible, he should have his cartridge-bag lying open close to his right hand; or if weather permit, he might have the cartridges lying open on the ground. None but those who have adopted this expedient can imagine the advantage to be gained from an arrangement so simple. It must, however, be confessed that

this species of sport is not of the highest class. To pick up thirty or forty hares for each gun—which is no unusual circumstance—the greater portion of them having been shot pretty much as in the position of targets, is not to my mind first-class sport. This feeling is, however, largely compensated for when we are reminded that from the serious injury done to sheep pasturage by mountain-hares, necessity calls for their being shot down, as, notwithstanding those who fall a prey to the eagle and the fox, they have a tendency to multiply in immense numbers.

When the drive is finished, the hares are gathered together, and the ponies, which follow round on the ridge—in order to avoid the bogs—come forward. The gillies in charge of them tie the hares together in dozens and hang them over the saddle, each pony carrying four or five dozen. The number, however, must depend somewhat upon the character of the ground to be gone over. As a general rule, after the first drive, which in most cases occupies several hours, the party meet at an appointed place and have lunch. On such occasions the keeper will see that the ponies are disburdened, and the hares stretched out upon the ground in order that they may become somewhat stiffened. If the season is not too far advanced, and the biting winds of winter be not making themselves felt, lunch under such circumstances contributes in no small degree to the day's enjoyment. No sportsman requires to be told with what relish lunch is enjoyed upon the moors after a forenoon spent in active exercise. With an appetite sharpened by the pure and healthful air which can alone be found on the mountain-tops, far away from the smoke of cities and haunts of men, this is a treat reserved for the few.

Before again starting, the gillies fill the cartridge-bags from the reserve supply carried by the ponies, some of which are sent home by direct route heavily laden with the spoils, while others accompany the party, who proceed to carry out the arrangements for another drive. From the time which must necessarily elapse before the guns are again placed in position, frequently a mile or two ahead, ere the second drive is completed, the setting sun will in all likelihood be found indicating that it is time all were making tracks for home. On such occasions as described, the lodge is rarely reached before darkness has set in. After a good plunge and change of clothing, dinner is enjoyed with a relish, and followed by a sound and refreshing night's sleep, which contribute immensely to the enjoyment of life. This sentiment will

be endorsed by all who have spent a livelong autumn day in the pursuit of hares amid the rocky and mountain ranges which constitute the background of some of the most wild and romantic portions of Scottish scenery.

The above is a fair picture of a day's hare and ptarmigan shooting on the ranges of Meall-na-letdhrach and Sgairneach Mor at Dalnaspidal, where I spent many happy days on the mountain-tops. As, however, the same programme is not followed at every place, a day on the high ridges which overshadow Loch Earn may be worth recording. Having occasion to be at St Fillans, I took the opportunity of visiting my old friend the keeper, who lived a couple of miles distant. On reaching his home I received a pressing invitation to stay for a day or two, and a hare-hunt for the morrow was at once arranged. The "fiery cross" was sent round, and punctually at nine o'clock next morning a number of keepers, shepherds, and boys made their appearance with ponies and deer-saddles from the neighbouring forest. The shooting tenant had returned to America, leaving instructions to kill down the hares and to send a hamper of grouse to New York from time to time. Hares, where very numerous, constitute a nuisance when grouse-shooting, their strong scent diverting the attention of dogs when in search of birds. Cartridges and lunch were put into panniers already on the back of a pony, while others with deer-saddles, on which to carry hares, were also in readiness. Starting shortly after nine, we at once commenced to ascend the mountain. For a time the way led through a grass field, and though steep, the walking was easy. As we approached the fringe of the moor, a clump of hazel-bushes was growing among some rocks on the hillside. I remarked to the second keeper that it looked a likely place for black-game. He replied in the affirmative; when I put cartridges in my gun, and he and I walked forward in advance of the others. Motioning to the retriever, that intelligent animal bounded off and entered the bushes. In an instant half a dozen grey-hens and a black-cock flew hurriedly out. Before starting in the morning the head keeper stated that a fine of five shillings was to be imposed on any one who shot a grey-hen. The shooting tenant was anxious to preserve them, in order that they might increase in number. The same protection was unnecessary with black-cock, they being polygamous. As the one in question was within easy distance, I dropped him in the heather. Shortly after we crossed a stone wall and got on to the moor proper. We then ascended the

steep shoulder of the hill which separates Glentarken from the face sloping down to Loch Earn.

It had been a hard frost during the night, and though a cold north wind was blowing, the sun shone brilliant as at midsummer, which, with the steep climb, caused us to perspire freely. The keeper kept beside me in order to point out the route. A brace of grouse rose at a somewhat distant range, and I fired at the cock bird. He was hard struck, but did not drop, so, watching his flight, we observed him "tower" and fall dead by the side of the Tarken burn. Proceeding on our way, we saw some large packs of grouse, which rose wild. Ever and anon numbers of from three to a dozen black-game started from the hillside far out of shot, and flew down to the woods beneath. At this season they ascend the mountains to feed on crowberries, which grow in profusion at high altitudes. Pushing on, we came suddenly on a single grouse, which flew out of a small hollow, and which I added to the bag. We were now far up the mountain, and the keeper remarked that we must wait till the others came up. The beaters were to remain here till the guns were stationed on their respective passes. Accordingly we sat down and waited. In a few minutes the party came up. After resting for a short time, we took our cartridge-bags from the panniers and proceeded to the summit. We cast lots for our positions, and dropped off at them as they were pointed out. An old bachelor grouse here rose with a defiant cackle, and being within fifty yards, I dropped him with a broken wing. On the dog fetching him I was struck with his large size, and bringing him to Edinburgh, found he turned the scales at twenty-eight ounces, an exceptionally heavy weight for a grouse. I have weighed scores of grouse and seldom found them exceed twenty-six ounces. I have, however, seen one killed by the late Mr Stirling Crawford which scaled thirty-two ounces. This was eclipsed by one recorded in the 'Field,' which weighed thirty-four ounces.

I drew No. 3 "pass," and on being shown my position went to the spot. A large number of bleached cartridge-cases lying about revealed the fact that hare slaughter on an extensive scale had been carried on during previous seasons. The long-continued and severe winter had further decimated their number, so that a large bag was not anticipated. I did not expect many, as we were on the side of the hill exposed to a biting north wind. The frost had been very keen, and icicles five and six feet in length were hanging from a rock near the spot where I stood.

All wild animals take the lee side of a hill for shelter, and mountain-hares are not an exception. Three came up the "pass" near me, which I shot. I saw a fox go near the next gun, but, getting his wind, he sat and watched several shots fired, then skulked downhill and was not again seen. The drive was a failure, only about a dozen hares being killed, so we pushed on for the next. It also proved a failure, very few hares being bagged. As we walked to our positions for the third drive I was interested to observe the countless thousands of cobwebs that stretched from the sprigs of heather. They had been covered with hoar-frost, which melted by the sun's rays, and were now revealed to the naked eye. The number of spiders must have been legion, as many miles of moorland were covered in the way described.

A cairn some distance off was pointed out as my next position, and to it I repaired. Reaching it, I sat down and surveyed my surroundings. What a splendid panorama! Far as the eye could reach mountain towered above mountain, as if vying with each other which should be the highest. It was a little after midday, and I knew the sun was nearly due south. Under it Ben Voirlich, with its snow-clad summit, rose to an altitude of 3224 feet. At its base, near Loch Earn, growing on a heathery knoll, is the "hanging tree" where "Jeddart justice" was dispensed to cattle reivers in bygone days. It is an ancient Scotch pine which has braved the storms of generations. The view was magnificent in its wild grandeur, yet as a sign of civilisation I could distinctly see a train winding round the mountain-side near Lochearnhead. This was aforetime the country of the Macgregors, and the glens which to-day are only trodden by shepherds and sportsmen were once peopled by the clansmen of Rob Roy.

To the west of Ben Voirlich, and farther distant, is Ben Ledi, 2875 feet in height. Still more distant, and farther to the right, the sublime and strikingly impressive summit of Ben Lomond, 3192 feet, is easily distinguished. Looking westward, the majestic conical form of Ben More rises to 3843 feet and constitutes a conspicuous feature in the landscape. More to the right and farther west is Benloy, the mountain of the fawns. It rises to an altitude of 3808 feet, and is the most graceful of the mountains which stud the neighbouring parts of Perthshire and Argyllshire. Past the right shoulder of Benloy is the cone-shaped peak of Ben Cruachan, 3611 feet in height. Looking in a northerly direction, Ben Lawers towers to an altitude of 4004 feet, including the cairn on its

summit. Farther to the right, I could see the peaks of Schiehallion in Rannoch, Ben-y-Gloe in Atholl, and others standing out against the horizon. All these peaks were already mantled with snow. Looking eastwards, the Lomonds in Fife meet the gaze of the observer; and in the near distance, Torlum Hill, which at one time was thickly wooded to the summit, is easily recognised. Once I bagged among its pines no fewer than eight capercailzie in a day. It was, however, in a single night entirely denuded of trees, a terrible November tempest passing over it and leaving desolation in its trail.

The windings of the Earn as it leaves the loch and the autumn tints of the foliage on the trees are truly picturesque and well reward a visit to the spot. As I sat on the cairn no sounds were audible but those of nature—the distant murmur of a waterfall, the sighing wind, the bleating of sheep, and the barking of dogs at the “fank” far beneath. The scene was impressive, but my thoughts were quickly diverted by a hare coming cantering towards me. It had already assumed its winter dress of snowy whiteness. Why, I wondered, should it be so early? A week of October was still to run, and it is rare to find hares pure white till November is well advanced. Prognostications of the weather can be learned by studying the birds and beasts that people our mountains. Already I had associated the whiteness of the hare with the intense cold and the falling barometer. A snowstorm the following day proved the correctness of my surmise.

Sitting on the cairn, I was not observed by the hare, which came “lamping” forward till within a short distance. Being to leeward, it evidently got my wind, and sat up like a miniature kangaroo. I could see the contraction and expansion of the muscles of its nostrils, from which I surmised it had scented danger. At this juncture another came galloping up, so, jumping to my feet, I rolled them both over as they scuttled away. Reports from other guns were rattling along the ridge, and I could hear the shouting of the beaters in the distance. The sunny and sheltered side was being driven, and hares were to be seen in all directions rushing about in wild excitement. Sometimes they would come close to me, when I would start up and shoot them as they ran off. At other times they would come within range and sit erect to reconnoitre. I frequently shot them where they sat—a most unsportsmanlike proceeding. I felt it, however, to be a duty to kill them in the most humane manner possible. Still on they came, and I fired, loaded, and

fired again, till the barrels of my gun became uncomfortably hot. From the reports of the other guns I concluded this drive was fairly successful, and on gathering up the spoils at the finish every one seemed satisfied. Adjourning to a sheltered spot, we found the man in charge of the ponies with lunch spread out on the heather, and which we enjoyed to the full.

The hares, which were spread out to stiffen during lunch, were tied together and hung over the deer-saddles. The gillie received instructions to meet us again at "the big stone of Glentarken." Another drive round the black rock was arranged, and we started accordingly. It could not be characterised as either a failure or a success, but the number bagged was not great. As the afternoon was wearing away, we spread out in line and shot homeward down Glentarken. This is one of the finest grouse glens in the Highlands of Scotland: a more glorious expanse of heather can hardly be conceived. Grouse, as has already been mentioned, were wild, but occasionally one sat within range and was added to the bag. On reaching the large monolith known as "the big stone of Glentarken," we found the gillie with the ponies. To him was handed the game killed at the black rock and on the way down the glen. Putting birds in the panniers and hares hung over the deer-saddles, he followed us closely homewards. At the side of the burn I picked up the grouse shot in the morning, and which had been carefully marked down. Reaching Woodhouse, the hares were spread out in front of the kennel and counted. The bag for the day consisted of 226 hares, 19 grouse, 1 blackcock, and 1 rabbit. It was poor as compared with previous years; but, as before mentioned, they had been largely shot down during the last season as well as decimated by the severe and protracted winter.

In ptarmigan-shooting the sportsman often finds the ground he is called upon to traverse very much the same in its physical conditions and other circumstances as that travelled over in hare-driving. If he should desire to have a few shots at hares while in pursuit of birds, this is easily attained by the observance of one very simple rule. By keeping well up towards the summit, he will manage to get within easy range of the hares without difficulty. As already indicated, they by instinct run to the heights for safety, and are most unwilling to start when denied the opportunity of doing so by either men or dogs approaching them from above.

As a large bag of ptarmigan is not usually obtained in connection with a hare-drive, it will be found advisable to devote a day more exclusively to that purpose. The reason for this is obvious. In a hare-drive every one is obliged to keep the ranks, and though a covey were seen to alight a short way off, a sportsman would not be justified in going aside to have a shot at them, as this would be to keep others of the party waiting, and interfere with the carrying out of the programme. When one or two go out with a couple of gillies specially for ptarmigan, they as a rule make a much heavier bag. To sportsmen who know the habits of those interesting birds, there is little difficulty in killing them, provided the day is fine. To know their haunts and search for them on the lee side of the hill, to single out the old birds at the first rise, to mark the covey and follow it, is about the whole secret in ptarmigan-shooting. As they—especially in hot weather—sometimes sit very close, a retriever is a valuable attendant. Even when shot, if falling among grey and white stones, usually in abundance in ptarmigan haunts, there is a difficulty in picking them up without a dog, so closely do they resemble the stones in colour. As the hills become white with snow, the ptarmigan also change their plumage, which vies with the snow in whiteness. Here we discover how wisely nature makes provision for those birds by enabling them in a great measure to escape the notice of the peregrine falcon and other large birds of the hawk tribe whose

“Eagle eye
The ptarmigan in snow can spy.”

To ascend the mountains alone in search of ptarmigan had always for me a peculiar charm and attraction. Many a livelong day have I spent on the mountain-tops at Dalnaspidal, near the watershed which constitutes the boundary between Perthshire and Inverness-shire, generally securing as many birds as I cared to carry. It was a long climb up Corrie M'Shee, and when the summit was reached a covey was sometimes flushed and crossed a deep glen which necessitated a long descent and up a painful steep on the opposite side before they again could be approached. At other times they sat close, and only flew a short distance. On one occasion I flushed a covey of seven, and secured the old birds at the first rise. Following the line of their flight, they were again fallen in with and another brace bagged. The remain-



Ptarmigan in Autumn.

ing three did not go far, and the entire seven found their way into the game-bag.

Ptarmigan are believed by many to have a natural affinity to the grouse. In all my experience I have never seen an instance of them mating, though I have known one drop an egg into a grouse nest and the chick reared.

Their cry is very different from the cackle of the grouse, which falls pleasantly on the ear compared with the discordant rusty croak of the ptarmigan. Their nesting-places also differ from those of the grouse, which, as already observed, are, as a general rule, to be found in proximity to water, while those of the ptarmigan are to be found at a great distance from springs or water-supply of any kind whatever. That young grouse would perish for lack of water where ptarmigan thrive is indisputable.

Owing to the barren and rocky nature of the ground which constitute the haunts of ptarmigan, how they manage to subsist during protracted winters is to a large extent a matter of speculation. I have frequently examined their crops, though never after the legal time for shooting them. In late autumn the contents consisted of the berries and leaves of plants peculiar to the mountain-tops, but of which I am not sufficiently skilled in botany to name. On some occasions it was found one had devoured a sprig of heather.

Reverting again to sportsmen in pursuit of ptarmigan, it is proper to observe that, however fine the day may appear in the morning, it not unfrequently happens that the hills suddenly become enveloped in mist, while it may be clear, and even sunshiny, in the plains beneath. When this is the case, firing should at once cease, as the risk of shooting your companions is very great, for there is nothing more misleading than mist. It will sometimes happen that if your companion chance to be out of sight for a little, you may think him on the right or the left, as it may be, but to your surprise you may discover the flash of his fowling-piece right in front of you, or hear him calling at a considerable distance in the rear. Shooting under such circumstances is as injudicious as it is perilous.

The danger of missing one's way in mist is also great. When fairly lost, the best plan to adopt is to follow the first water found running, which to a certainty will lead to the low country, though it may be far from your destination. Years ago this misfortune happened

when out ptarmigan-shooting; and though only a couple of miles from home, so dense and confusing had the mist become, that it baffled all the keepers and gillies to state with confidence their exact whereabouts. There were two water-courses, running somewhat in different directions; but as to the proper one to follow leading homeward, two keepers, both long resident in the district, disagreed. I was unfortunate enough to confide in the one who was wrong, and about a couple of hours afterwards found ourselves by a riverside into which the mountain streamlet emptied itself, eleven miles from home by a safe road.

There is something in being lost among mist or snow which it is difficult to explain. I have known shepherds and keepers who have been familiar with the district for years get as thoroughly confused and unconscious of their real position as if they had been utter strangers.

The sportsman in pursuit of ptarmigan will in fine weather, when the ground is dry, find the birds sit very close, and owing to their reluctance to rise, they will often be seen running among the grey stones or "scolithers," where they generally allow the guns to approach within a few yards before they take wing. The temptation for young sportsmen to shoot before allowing them to rise is here very great. Perhaps there are more ptarmigan shot while running or cowering among the stones than other winged game. This arises from the anxiety of most sportsmen to get possession of these birds, they being more rare than other kinds of game.

Ptarmigan-shooting depends on ever-varying circumstances. I have gone out one day, and been baffled in getting a single bird, while on other days I have had no difficulty in bagging from five to ten brace.

Mr Millais, in his charming book, 'Game Birds and Shooting Sketches,' records a novel way of poaching ptarmigan and grouse. The *modus operandi* is, after a fall of snow, for the poacher to make indentations with a champagne bottle in places likely to be haunted by the birds in question. When snow has fallen in these high altitudes frost generally sets in, and, after the snow is frozen hard, corn is scattered about, and put into the bottom of the bottle impressions. The birds, it is alleged, pick up the scattered grain, and, having their appetite whetted, try to reach that in the bottom of the holes, with the result

that they topple over and are unable to extricate themselves. Mr Millais records this on the authority of an old Highland poacher. Having heard numerous yarns of the contrivances of poachers, many of which I discovered to be humbug, I resolved to put it to the test at Dalnaspidal in Perthshire, and also in Sutherland. Though I do not regard it as impossible, my experiments at least were a failure, as not a single bird was captured.

CHAPTER VI.

BLACK-GAME SHOOTING.

THIS is a species of sport which is often destroyed for the season by the premature slaughter of the birds. In the event of the game-laws being amended, provision should be made for extending the time for the commencement of shooting black-game from the 20th of August till the same date in September. Viscount Dalrymple, now Lord Stair, introduced a Bill in the House of Commons to extend the close time for black-game, so that they should not be shot before October 1st. But for the outbreak of the war the chances are it would have become law. This I would regard as a mistake. In most cases the holidays of shooting tenants who come to Scotland do not extend beyond August and September. The result would therefore be that many would be deprived of the sport of shooting this magnificent bird. Not only so, it would also limit the number of applicants for those moors where black-game constitute a large percentage of the bag, and thus be a hardship on proprietors. Take as an illustration some places in Dumfriesshire, where several hundred blackcocks can be killed in a season. Only the limited few who have no professional and commercial duties to attend to would care to take such a place.

In many parts of Scotland, such as Dumfriesshire, Roxburghshire, and Selkirkshire, where black-game abound, they might at the beginning of the season often be picked up with a steady dog, without almost a shot being fired except at the old birds. There are few things more disagreeable to a sportsman than, after having shot at young black-game when rising "corncrake-like," to see them picked up soft and comparatively useless. Although it is legal to shoot them in such circumstances, the interests of proprietors and lessees alike suggest that, altogether regardless of the statutory period, no black-game should be

shot until the young cocks have become black on the back, and the hens well fledged and strong on the wing. Even then, from their habitat being among rough "spretts," rushes, or thick ferns, they lie so close that unless allowed to get a reasonable distance before being fired at, the chances are that they will be mangled and unfit to be bagged. The accuracy of these observations must be too well known to sportsmen to be insisted upon, but to young impulsive novices they are highly important; and, however disagreeable to keepers, they ought, in the interests of honourable and dignified sport, to see that the above rule is rigidly enforced. I know no better cure for the unsportsmanlike habit referred to than to compel those young gentlemen who indulge in it to stand and see the soft, damp, and bleeding mixture of flesh and feathers turned out of their bag after reaching the lodge. I have seen this experiment tried, with the invariable result that the persons responsible for such folly were heartily ashamed of it. It is not merely the loss of the game, but there is the sacrifice of that which a month later would have afforded really good sport, and constituted a truly splendid bag.

There are few sportsmen who, while shooting grouse at the commencement of the season, have not occasionally come across a brood of black-game. In consequence of the reluctance of those birds to rise—more especially if it should chance to be wet—the temptation to dogs, even thoroughly trained, to "snap" at them, is very great. One of the otherwise best-behaved pointer bitches I ever shot over frequently erred here. She seemed to have only one idea—viz., that of filling the bag; and so long as the birds rose freely she was faultless. When, however, she found black-game, and the young birds scattered, she took a special delight in catching them, notwithstanding that she was frequently whipped for it. I have seen her jump at a bird when it rose, and when she missed it her jaws would clank together like those of a fox-trap, although, strange to say, she manifested no such mischievous tendency among grouse.

Black-game will not stand the same amount of shooting as grouse. They are, as a rule, put up one by one at the very nose of the pointer, and are so easily hit that even an indifferent shot with a steady dog may, by following those he has missed, bag an entire brood, with the exception of the old hen, which, if not killed the first rise, will generally contrive to keep out of the way for the time being. There is thus a

danger of their being extirpated. Old cocks in the month of August, being the time they are moulting, are lazy and reluctant to rise, and are often bagged over dogs. At this season they betake themselves to clumps of very thick ferns or rushes, where they will sit till compelled to make off. They frequently, however, make good use of their legs, and often baffle those unacquainted with their habits.

Unless game is really wanted, I would discourage the marking and following of young birds that may have escaped from the covey; otherwise, as we have shown, the ground will soon be cleared.

Some years ago, on the Dalnacardoch moors, while hunting with a pair of dogs for grouse, they both found game at the same time, and on going up to the nearest one, a fine covey of seven black-game rose singly or in pairs, and every one fell. On going to the second dog, another covey of six rose somewhat similarly; but this time two got off unscathed, flew a few hundred yards, and settled together. One of the dogs, which had seen much service, marked them down, and on the dead birds being picked up, it ran straight up to the two which had just settled and again pointed, when the sportsman followed and bagged them both.

It must not be supposed they were Cockney sportsmen, as the very opposite was the case. These gentlemen came to Scotland for three weeks' or a month's grouse-shooting, and those who have had experience with dogs on a moor know the nuisance associated with getting them away from the strong scent of running black-game. As a result they were not wanted, and they were killed to get them out of the way.

Not only do black-game lie close at first, but while they take longer flights after they are full grown, they are reluctant to rise a second time. When the male birds get their winter plumage, and especially on high ground, I would withdraw the plea for protection, as there are few birds more "wide awake." Grey-hens ought to be treated in the same manner as the true sportsman does hen pheasants. It is surprising, however, the number that are killed in mistake for cocks when they are being driven in certain lights. I have frequently made this mistake, and one instance I will not readily forget. It was at Ardlussa in Jura. The woods with which the hillsides are engirdled along the coast were being driven, and a dozen or so of black-game were approaching straight towards me. They were coming down wind at a great pace, and whenever they were within shot I fired, and killed the

first bird right in front. When passing overhead I doubled up another with my second barrel, and at the same moment received a terrific blow on my right arm immediately below the shoulder from the first bird in falling. It was very painful, and for weeks after the spot was all the colours of the rainbow. I was indeed surprised to discover that it was a grey-hen I had shot, and which struck me as described. Once black-game pass the shooter it is easy to discriminate between cocks and hens.

Once, when engaged in a fox-hunt on Ben-y-Gloe, I spent the night at Fealar, and started with the keepers at break of day to guard passes near Loch Loch, where Reynard would attempt to escape should he be pressed. As we proceeded it was interesting to note the leks or battle-grounds of three different lots of black-game. Several times I stopped to have a look at the pugilists through the telescope, but, falling behind, had always to run up to the keepers, who hurried on with the remark that we "were late." After a great fox-hunt round the mighty Ben, when three old foxes and a litter of cubs were secured, I returned to Fealar. On the way I visited one of the battlefields of the blackcock witnessed in the morning. Nothing, however, was to be seen except some feathers which the savage birds had torn from each other. The ground was quite flat, with no place to conceal oneself, and as I had to leave the following morning, there was no time to extemporise a hiding-place, so I was disappointed in not getting a close view of the remarkable manœuvres of the birds in question.

Shortly after, however, I paid a visit to my friend the late Dougal Campbell, the veteran stalker in Strathconan Forest. He had a croft of considerable size on a flat meadow between a large wood on the hillside and the river Meig. Here black-game congregated for the lek, and I resolved to conceal myself as near as possible before daylight the following morning. Dougal walked with me in the evening to show me a suitable place to hide in the wood, and, this accomplished, we sauntered slowly homeward. It was interesting to observe the number of woodcock that were flying backward and forward as if pursuing each other, occasionally uttering their peculiar note, which I am unable to describe. I have never been able to ascertain why these birds fly as they do at dusk in the evening and at daybreak in the morning.

With a kindness I shall never forget, Mrs Campbell sat up lest I should not awake, and before three o'clock a rap at my door announced it was time to get up. Hurriedly dressing, I got downstairs, where a

sumptuous breakfast was awaiting me. After some tea, with eggs and bacon, I put on my ulster and started for my hiding-place. It was full moon, and I had no difficulty in finding it. Breaking off some boughs of the fir to sit on, in order to be off the damp ground, and buttoning my coat, I sat down, telescope in hand, to await the coming day. All was quiet as the grave, yet it was delightful to be thus alone with nature. The moon was lowering in the western sky, and by-and-by a streak of light in the east announced the approaching day. Gradually the darkness was giving place to light, when I observed a moving object on the meadow where the lek took place. For a considerable time I could not make out what it was, but as the light got stronger I observed it was a deer. It turned out to be a tame stag which had been reared as a pet by Mrs Campbell. To use the words of Dougal, this deer almost broke his heart, as he could not keep it off the young grass sown on the croft for winter fodder for his cows. It was, he said, "the cunningest of cunning beasts," and though he hunted it off with his large powerful retriever "Tweed" early in the morning and late in the evening, it completely baffled him. Presently a loud call in close proximity almost caused me to jump to my feet. "Cuckoo, cuckoo, cuc-cuc-koo!" These were the first sounds I heard in the quiet of the dawning day. Strathconan is a great resort of cuckoos, and it is almost needless to say the loud note of this "harbinger of spring" within a few yards of me intensely delighted my ears.

Presently three blackcocks appeared on the meadow, but unfortunately at a distance of over a hundred yards, and in ones and twos others arrived. As they came from the wood on the hillside over my head, I did not see them till they were alighting. Fourteen had assembled, but for a considerable time no hens were to be seen. The resonant notes of the cocks were distinctly audible. This, it is believed, is the call for the hens to come to the tournament and select the cocks of their choice. At last a hen made her appearance, and it was interesting to note the commotion among the assembled cocks, and the peculiar antics they displayed. Eventually others arrived, but I was disappointed in not seeing a proper tussle between two birds, so beautifully portrayed with pen and pencil by J. G. Millais in his 'Game Birds and Shooting Sketches,' or as is frequently seen with pheasants or barn-door fowls.

By this time the stag had sped away homewards, and was nearing

the fence. In the absence of antlers, he could squeeze himself through between the wires. He evidently anticipated getting out before Dougal and the dog made their appearance. In consequence of the tragic end of my friend John M'Lennan, the stalker in Fannich Forest, who was gored to death by a stag he had reared as a pet, Dougal took the precaution of sawing off the antlers of the one in question every year before the shedding of the velvet, hence his squeezing through wire fences without difficulty. Cunning as he was, this morning he miscalculated. When he was close to the fence, Dougal and the dog came round the corner of the house. Immediately "Tweed" was sent in pursuit, and from my place of concealment I witnessed the finest chase I had ever seen. Stag and dog were about equally matched in speed, though, if anything, the latter seemed to have the better of it, and they came galloping in my direction at a terrific pace. Right through the lek they came, and the black-game on their approach stood with heads erect, but soon winged their way into the wood. The stag was largely endowed with the instinct of self-preservation, and it was interesting to observe his tactics. When the dog's head got about half-way alongside of his body, he "tacked" in order to keep his stern towards his pursuer. He seemed instinctively to know that the neck was a vulnerable place, and the part the dog was aiming to seize. On the chase went, the tactics described being again and again resorted to. The opposite side of the Meig was sheep ground, and consequently the river was sufficient boundary, a fence being deemed superfluous. Approaching the river, the stag, with a tremendous bound, cleared about twenty feet of water, and landed on an island in the centre of the Meig. Tweed seemed instinctively to know that if he swam across he ran the risk of being brained by the fore-hoofs of the stag, and having performed his duty of chasing the deer off the croft, he trotted homeward. In the excitement of the chase I forgot all about the black-game, and followed as fast as I was able. On reaching the spot where the stag was still standing on the island, I was amazed to see the distance he had jumped. When I arrived at the house, Dougal informed me that he had risen half an hour earlier that morning, hence the stag's miscalculation, and hence his being so neatly caught trespassing.

Looking up the meadow, we saw that the black-game had again assembled on the same spot, and at once I started for my hiding-place. It was necessary to keep out of sight, and I had to scramble through

the thick wood till I reached my seat of fir boughs at its outer edge. Again I failed to see a stand-up fight, though in several instances one cock was chasing another, and in two cases the vanquished winged his way to the wood. At last one seized another by the neck, striking vehemently with his wings, but it was no fight, as the weaker at once turned tail and ran. It was a picturesque sight to see so many of these birds, with their crimson-coloured eyelids, their arched tails, and their wings grazing the ground, the apparent embodiment of rage. Little actual fighting took place, however, and I was somewhat disappointed; but my early ramble was not without its compensation. The sun was now getting high up in the heavens, and its warm glow aroused insect life. It was a beautiful morning, and, as I think of it, I cannot help reflecting that there is something to be said for the Day-light Savings Act. No sounds were audible but those of nature—the loud note of the cuckoo, the skylark warbling his sweetest song in his aerial ascent, the whirroo of the blackcock, the “go-back” of the grouse, the murmur of the Meig, the wavering call of the curlew, the plaintive wail of the plover, the bleat of a lamb on the mountain-side, and the hum of a bee just awakened from his winter’s sleep. In addition, every warbler in the grove seemed bent on pouring forth his sweetest melody. In an instant the scene was changed. A pair of eagles had their eyrie in a rock on the opposite mountain-side, and one of the birds flew across the valley. The loud rush of black-game wings as they hurriedly flew to the wood for concealment reached my ears, and at once every songster in the grove was silent. Waiting for half an hour, and no black-game appearing, I wended my way to the house. Shortly after, the stag was quietly feeding with the cows, and “Tweed” taking no notice of him.

When black-game begin to feed on corn, they will, if near corn-stocks or stubble, frequently be found in places where one would not expect to find them. Occasionally they will be found at the roots of hedges, among small clumps of trees or brushwood, and very often in rank turnip-fields. In this latter situation I have seen splendid shooting got, the young birds being strong and full-fledged, when a couple of brace were worth three times that number in the early season.

In sunny forenoons, when the mornings are frosty, in the latter part of the season splendid sport may be got by stalking blackcocks—a fine preliminary exercise for deer-stalking. At this time of the year



Blackcock fighting.

cocks separate from the hens, and generally make for the high ground. One autumn afternoon, while hunting on the hilly slopes which overhang St Mary's Loch, I discovered a pack of five old blackcock, well up towards the summit. Having coupled up the dogs and left them in charge of the keeper, I proceeded to stalk towards the inviting pack. When within about a hundred yards, several of the birds, observing my approach, rose and flew right ahead in the face of a strong south wind. One of them, which had failed to notice me, swept round within reach, and fell to the first shot. Following the course taken by the rest of the pack, I was not long in descrying them half a mile ahead, settled on a patch of burnt heather at the top of a deep gully or watercourse. By going round, I got down into the gully unperceived, and was thus able to get within twenty-five yards of the birds. On looking up, they all rose simultaneously; and, taking advantage of the position, I instantly fired. Three fell to the first shot, and the last remaining bird dropped to the second. I was thus fortunate enough, by stalking for little more than half an hour, with three shots, to bag five fine old blackcock, which would have proved a sufficient reward for a day's hard work among the hills at that season of the year. I have seen first-class blackcock-shooting got on the summits of some of the highest mountain-ranges in the south of Scotland, where there are tablelands of many acres of moor and peat-hags; and when once reached, stalking can be accomplished with a minimum of toil and inconvenience. Towards the end of the season these tablelands of broken ground are frequently enveloped in mist. This is found to be a great advantage to the stalker, as the birds are apt to get confused, and may be killed in large numbers if he exercise the precaution to keep himself and his retriever out of sight.

Black-game devour practically all kinds of wild fruits and seeds, insects, heather, grain, shoots and buds of trees, especially birch. They seem specially fond of rowan berries, and in seasons when these are plentiful devour them greedily. They ascend to high altitudes in September and October, where cranberries are found in profusion; and when an eagle appears in the distance, the way they hurriedly wing their way downhill to the woods is a sight to be remembered. During the protracted storm in March 1916, when snow was lying to a great depth in Sutherlandshire, a blackcock was killed by flying against telegraph wires. The keeper who found it forwarded its crop to me. Considering the depth of snow, one would have expected to find the shoots of trees, but

it was discovered that the bird had gorged itself with heather, just as would be expected in grouse. However deep snow may be in mountainous districts, there are always some exposed shoulders of hills cleared by wind, and there game-birds congregate to feed.

It was frequently asserted by many sportsmen of the past that grey-hens did not breed till two years old. This, however, is not the case, as both black-game and capercailzie nest the year following that in which they were themselves hatched.

The blackcock occasionally cross with capercailzie, and hybrids between them, as well as between pheasants and grouse, are sometimes met with. Mr Millais, in his book already referred to, gives some beautiful illustrations of them. A few years ago I watched with much pleasure in the spring a blackcock which took possession of a small field sown with oats between two clumps of wood. He could be seen day after day for a week or two with a harem of pheasant hens, for whose admiring gaze he strutted about, spread out his tail, and cooed his peculiar love-song. Woe betide the cock pheasant that dared to appear on his preserve: the blackcock was after him at once, and chased him into the wood. Though pheasant cocks are no mean antagonists, and fight gamely with domestic fowls and one another, none of them ever showed fight with the blackcock, but turned tail at once. This is the more remarkable, as an old cock pheasant has formidable sharp spurs, which the blackcock hasn't. Hybrids were naturally looked for that season, but none were observed. I have, however, seen a stuffed specimen in Douglas Castle in Lanarkshire, and in Glen App Castle in Ayrshire.

I have also watched at a feeding-place in a wood after putting down maize, and witnessed a blackcock keep pheasant cocks away till he had sufficient, and gone off.

In driving black-game, they, unlike grouse, when once fairly on the wing, will not deviate from their course, even should they see the sportsman standing with fowling-piece ready to receive them. Although heavy and awkward in their flight when young, there are few birds which go at such a tremendous speed and with such an impetus as an old blackcock which has stood the storms of several seasons in the barren waste-lands of our Scottish mountains. I have frequently seen them shot while being driven at the beginning of December; and although pierced right through the head or heart, and death instantaneous, such

was the velocity of their flight that they did not fall until about sixty or eighty yards beyond where they received the shot. At this time of the year there is no finer specimen of a bird than an old blackcock. There is something in his beautiful crimson-coloured eyelids, in the glossy blue plumage which marks his neck and breast, in his handsome form, and in the sweeping curve of his tail, which constitutes him one of the finest ornithological pictures which this or any country can produce.



The Deer knew he had been disturbed.

CHAPTER VII.

DEER-STALKING.

DEER-STALKING has very appropriately been designated "sport for princes." In order to its full enjoyment, grouse-shooting must have been prosecuted and enjoyed in mountainous regions where difficulties, and even hardships, could only be overcome by the perseverance of an enthusiastic sportsman. The training thus acquired by the scaling of precipitous rocks and the traversing over miles of moorland, whereby the limbs and lungs are alike tested, is indispensable as a preliminary to make deer-stalking either enjoyable or successful. I should as soon expect to find a good English scholar who had not passed through the elementary standards, as to find a gentleman a successful deer-stalker who had not previously been an ardent and somewhat successful general sportsman, and more especially, as indicated, among grouse and ptarmigan.

Those who have witnessed the awkward appearance of the young sportsman who for the first time tries his hand among the steeps and

mountain fastnesses of a Highland grouse-shooting—invariably associated with a light or empty bag—do not require to be told how ridiculous would be the attempt of such a one at deer-stalking, where skill, experience, and general tact are so necessary, with not a little knowledge of the habits of the noblest, and at the same time the most shy and wide-awake, of living animals. Indeed, it is the skill and perseverance required, coupled with those numerous collateral difficulties contingent upon wind, sunlight, and position, which give zest to this the most magnificent of all sport. It is difficult to explain, and certainly impossible to describe, the mingled feelings of excitement and interest of the enthusiastic sportsman who, after perhaps a couple of hours' toil and stratagem, finds himself for the first time within eighty or a hundred yards of a noble stag, as it raises its head majestically to the heavens the moment when it first realises the possibility of danger. It is at this juncture that the accuracy of the preceding observations will be apprehended, and when the nerve of the sportsman will be thoroughly put to the test. He may have one of the best and truest rifles ever manufactured, and he may have practised with unerring aim at the target on the rifle-range with the most remarkable results, but unless he has been thoroughly educated to exercise calmness and deliberation in such circumstances, the chances are that, before he is well aware, both barrels will be discharged, while the noble monarch of the forest may be seen bounding across the mountain-side, and the sportsman standing bewildered and confounded, with the stalker by his side, the personification of blank despair.

As wind is the greatest difficulty the stalker has to contend with, it is not surprising that "How is the wind this morning?" should be the first question put to the stalker when he appears before his master to make arrangements for the sport of the day. Should the forest not be an extensive one, and the wind in an unsuitable direction, it is advisable not to disturb the ground at all, otherwise there is the risk of the deer being put off the ground to afford sport for the tenant of the adjoining shooting. If the day can be spent in grouse-shooting or angling, the time may be pleasantly occupied; but if neither of these is available, it is much better to remain in the lodge and wait for a change of wind than to have the deer driven out of the forest, as they may not return for days. It is remarkable how deer, guided by natural instinct, generally travel with their nose to the wind; and when it is

kept in view that their smelling powers are such that they can detect the presence of man at the distance of a thousand yards, it is easy to see the folly of attempting to stalk down-wind. So strongly are they endowed with the instinct of travelling up-wind that a calf a month old, if separated so as to have lost sight of its dam, will run only as described. As is generally known, the stalk is far oftener destroyed by the deer getting wind of the stalker than by seeing him, hence the necessity of always studying to keep leeward. Should the nature of the ground be suitable, this is easily accomplished; but in some of the deep round-shaped corries the wind not infrequently whirls round like water in an eddy. This fact is well understood and taken advantage of by the deer. Hence the reason why they are so often found in these corries, where the wind operates in the manner described.

It will occasionally happen from the flatness of the ground that it is almost impossible to approach undiscovered, even within a distant range. Should the sun be well up, with the wind favourable, and the stalker is able to get in a direct line between the sun's rays and the deer—more especially if there be only one—it will materially contribute to his chances of getting within a reasonable distance. It is an interesting study, to those of a contemplative mind, to trace the singular provision which nature has made for the protection of wild animals, and to note, as in the present case, how quick they are to take advantage of it.

Many years ago, while grouse-shooting in Strathglass, I sat down to lunch in the early afternoon near the top of a high mountain from which a commanding view of the valley below was obtained. My attention was directed to a herd of deer making their way northward in the face of a gentle breeze. On approaching a burn, they appeared startled and excited, and three times in succession moved away back at an angle towards the east, and returned again to the burn in crescent form. Though evidently anxious to press forward, they ultimately settled down, as if afraid to attempt further to push their way northwards. What would have appeared to the uninitiated a strange freak, was simply an illustration of the keen instincts of the deer, as they were afraid to cross the burn in consequence of their scenting my footsteps, notwithstanding that nearly six hours had elapsed since I had ascended the rising ground by the side of the burn. I have frequently observed the same manœuvre, but not after such a long period as six

hours. We discover in this incident an interesting illustration of the timidity of the deer, and the extent to which it is indebted to its sense of smell for protection.

If it is found in the early morning by the sportsman that the wind is in a favourable direction for stalking, arrangements are made for a start accordingly. In nearing a point where deer may reasonably be



Scenting men's footsteps.

expected, the services of a stalker are of immense importance. To a stranger, there are in most forests certain objects which attract attention, and not unfrequently present the appearance of deer, and, as a result, the attention is not only distracted, but time wasted. All this is avoided when matters are left entirely to the stalker, whose experienced eye is familiar with all the boulders, bent tufts, and other objects by which the uninitiated are apt to be misled in their anxiety to dis-

cover deer. Matters being left to the stalker, he will be careful to be a little distance in front, scanning, with the aid of his telescope, every bit of fresh ground as it comes in sight. It must be confessed that much pleasure is afforded in spying ground and finding deer for one's self. In most cases, however, the stalker who is intimately acquainted with "the corries" will first discover them.

It is difficult to realise the interest and suspense felt by the excited sportsman when the stalker indicates that he discovers the watchful herd of deer leisurely grazing along the mountain-side, or resting securely in the sheltered corrie, with the wily hind in a more elevated position acting the part of sentinel. The confidence which the antlered portion of the herd place in the loyalty with which the hinds discharge their duty as sentinels is seen from the apparent indifference and conscious security which they exhibit in such circumstances. It is only in cases of desperate peril that they will hesitate to follow the hinds when the sportsman is in pursuit. There are times however when, being driven by a line of beaters from behind into the "pass," and discovering the rifles lying in wait to receive them, they will wheel like a troop of cavalry into a compact mass, and stand until their course of action is decided upon. When the alternative of breaking through the beaters has been resolved upon, and the hinds hold back hesitating and afraid to take the lead, the old stags may be seen pushing and pressing them on with firm and resolute purpose. Sometimes, as occasionally happens, the hinds obstinately refuse to turn and face the noisy host of beaters. In such circumstances, the noblest and largest stag will often be seen to rush towards the front, and with a courage and promptitude which requires only to be seen to be admired, will break through the line of the advancing beaters, preferring this alternative rather than subject himself and his followers to the fire of the rifles which he suspects to be lying in ambush in advance.

While in a number of the high-rented deer-forests in the Scottish Highlands no great exertions are required to discover deer, it is in many other places very different. Indeed, I have known shootings where, although deer were fairly numerous in the district, several anxious days have been spent without their being seen.

Some years ago a couple of sportsmen took a shooting in the immediate vicinity of a deer-forest, and were exceedingly anxious to kill a stag. Though led to understand by the advertisement of the shooting

that "deer were almost constantly on the ground," they had failed to get a shot till October was far advanced, and the "rutting" consequently begun. As the birds had become very wild, and grouse-shooting had thereby lost its attractions for the season, they devoted a few of their last days, prior to going south, in anxiously endeavouring to get a shot at deer. For some days previously they had been kept in the house owing to the inclemency of the weather, which had resulted in giving the hills a coating of snow. Armed with rifles and the necessary ammunition, they on the morning of their last day set out with the keeper in great spirits, having heard from a shepherd on the previous evening that he had just seen a number of stags on the ground. After an hour's climbing to the hilltop among the snow, they stopped for a few minutes till the keeper surveyed all the ground within sight with the telescope. This was a simple matter, as any object was easily discernible on the snow. The sportsmen remarked it was no use putting off time, as deer could be seen miles off with the naked eye on the white ground. The keeper replied he saw something, but could not make out what it was, and would like to watch it for a minute or two, to make certain whether or not it was a "beast." Requesting the glass, they scanned all the ground in the direction the keeper was so intently watching, but as neither could make out anything the least like a deer, they again stated they were only losing time, and handing the glass to the keeper, started off, expecting him to follow them. He, however, not being satisfied, took another look at the distant object, and was rewarded by seeing a stag rise from behind a bit of rock where it had been partially concealed, look round, and lie down again. He called to the gentlemen, who quickly rejoined him, and one after the other looking through the glass, distinctly saw the object of their desire, the head and horns this time being quite visible. A council of war was at once held, but it was discovered that the stag had taken up a most unapproachable position, having placed himself on the top of a ledge of rock. Only in one way did it appear possible to get near the spot where he lay unperceived, and that was by going windward, which of course was out of the question. By going round a long distance and approaching him from the opposite side, the keeper saw they could get within about three hundred yards of him. This, he indicated, seemed the only chance of a shot. They started on this mission, but unfortunately found they had a ridge to cross which would necessitate them to be exposed for

a short distance. They, however, managed to wriggle on their stomachs at about the rate of a yard a minute, and succeeded in crossing the ridge unobserved. The nature of the ground then enabled them to walk upright for a considerable distance, till they got within five hundred yards of the stag. At this critical juncture a large fox was seen galloping along the hillside in the direction of the stag. Ever ready to turn to instant account the hurried movement of a fox, the startled cackle of a grouse, the discordant croak of a ptarmigan, or indeed the disturbed movements of any living thing, the stag immediately jumped to his feet and galloped off, passing within three hundred yards of the rifles. As they lay flat, they were quite concealed by a small hillock from the stag, and as he was passing broadside he afforded an excellent shot, though at too distant a range. Seeing it was their only chance, however, they opened fire, the four barrels being speedily discharged, but without effect; and the stag instantly stood still, utterly bewildered, then walked off. The loading of the rifles was but the work of a few seconds, when another volley followed, with similar results; but the stag this time getting sight of the sportsmen, made off. As he had several hundred yards to run before getting out of sight, they blazed away as long as they could see him, and it is almost needless to say, without any practical result. The keeper was lying flat on the snow watching with eager interest, expecting to see the stag roll over as shot after shot was fired; and when it disappeared, he turned to the sportsmen, and saw to his mortification that they had been firing without having put up the sight adapted for the distant range. As soon as the stag had disappeared, the sportsmen naturally concluded that some of the bullets must have taken effect, and on asking the keeper what was his opinion, he replied that "if he was hit they would easily discern blood on the snow." On getting up to his track, however, no blood was to be seen.

Deer-stalking such as has been described will no doubt be condemned as an outrage upon every principle by which sport is regulated, as the result frequently is not only the infliction of pain upon the deer, but in many cases their utter loss, by being left to die undiscovered. This amusing incident in "deer-stalking," as graphically described to me by the keeper, is, however, not without its lesson. These English gentlemen were induced by a species of advertising—which in the business world would be simply characterised as grossly dishonest—to pay a large rent, and in addition to spend several hundred pounds in

collateral expenses, under the impression that they would at least have several opportunities of killing deer. The result in this case was, that during the entire season the episode to which I have referred was the only occasion when an opportunity for firing a single shot was realised.

When grouse-shootings are separated from deer-forests by a wire fence, as many now are, it is rare that a shot-at deer is got during



Missed.

the proper season. After the rutting has commenced, however, they are to be found roaming about, and a fence four feet in height is no hindrance to their rambles. In several forests in the Highlands, the proprietors have a wire fence seven feet high all round. This is most objectionable, as in snowstorms the fence in gullies is frequently drifted over, when the deer pass out to the lower ground in search of food, and when fresh weather returns, the fence which was put up for the purpose

of keeping them in is the very means of keeping them out. On more than one occasion I have seen where deer fences existed, places made where deer could jump in, but could not get out again. This hardly comports with my ideas of the action of a gentleman.

It is perhaps worthy of note that the fence along the sides of the Highland Railway, though only three and a half feet high, completely separates the deer in the Highlands. Before the construction of the railway, the "deep corrie" at the county march between Perthshire and Inverness-shire was a favourite "pass" between the forests of Gaick and Benalder, and was very frequently the habitat of deer. For thirty years and more afterwards they were a rare sight in that locality. I have often followed their tracks in snow coming direct from Gaick till they were retarded by the railway fence at the place referred to, when they would walk along the side of it for five or six miles, then leave it and go in a direct line back to Gaick. Notwithstanding that there are numerous bridges below which they might have passed, I never saw their tracks below one, nor did I ever see them jump the fences, though they are no higher than the sheep fences which surround many forests, and which they are in the habit of jumping frequently.

It seems strange that, while jumping higher fences with apparent ease, they have such reluctance to cross those in question. We can only account for it by the fact that they are never allowed sufficient time to get accustomed to them till they are startled by a passing train, and which in the dark must present to them a sight studiously to be avoided.

Since the district has been afforested deer have become quite accustomed to trains. Frequently when passing early in the morning, or before dark in the evening, I have witnessed them feeding within a hundred yards of the line without even lifting their heads, though the express goes thundering past at fifty miles an hour. Passengers travelling north must have noticed the flat bogland that stretches for a mile and a half along the line after passing Dalnaspidal Station, overshadowed by the mountain named the "Sow of Atholl." This bogland, intersected by the windings of a tributary of the river Garry, is a favourite haunt of snipe, and I have killed many there. Now, however, it is under deer, and constitutes excellent winter and spring feeding. The soft nature of the ground is the best possible pasturage for deer in the early spring, as there the various rushes and sedges on which they feed grow in profusion. The many-stemmed clubrush (*Scirpus multi-*

caulis), the scaly-stemmed clubrush (*Scirpus cæspitosus*), and the sheathing cotton-sedge (*Eriophorum vaginatum*), on which deer seem to revel in winter and spring before grasses appear, as already said, are found there in abundance.

Though deer are not known to cross the railway in the district near Dalnaspidal, there are places where they do so occasionally. At Glenfinnan on the West Highland line, and at Achnashellach on the Dingwall and Skye Railway, they have been seen to cross. In order to satisfy myself, I repaired to the latter place, and sure enough I found the hoof-prints on the line. It was, however, where the railway runs through a wood, and where the fences were low. Why they should cross in one place and not in another must, I think, be explained by the small number of trains which run during the night on these lines, and by the shelter afforded by a wood. So long as they are undisturbed by passing trains, the low fences are no hindrance to their rambles.

One of the most serious evils with which deer have to contend is the severe and protracted snowstorms that never fail to visit the Highland moorlands during the winter months. From this cause many betake themselves to the low ground—despite the watchfulness of the forester—and occasionally don't return, being hunted with dogs and shot by crofters and labourers. In order to prevent this, recourse is sometimes had to feeding the deer with hay, turnips, &c. This practice, however, is not to be recommended except in very extreme cases. There are two objections to artificial feeding which ought not to be overlooked. First, unless there is a superabundance of food, the large and heavy stags not only devour much more than their share, but they so interfere with the weaker portion of the herd as to prevent them getting a substantial advantage from the food provided. Then there is the tendency of the deer to get tame and dependent upon artificial supplies, so that after the storm has abated they are often found dodging about the woods, instead of betaking themselves to the mountains, even after food could be obtained. It does not require to be pointed out that when deer are divested of their natural timidity and watchfulness, stalking loses half its charms. It should here be mentioned, however, that old stags which have run the gauntlet of rifle bullets in past seasons know when their troubles begin, and seek the solitudes of the most high and inaccessible corries, until the rutting season begins, or they are driven down by inclement weather.

While deer-stalking is one of the most exciting of field sports, it is also one of the most arduous, and puts a strain upon the physical capacities of those who indulge in it, unknown in any other kind of sport in this country. Even rowing, racing, or leaping is not to be compared with it. The physical exertion in such cases is of brief duration, while that of deer-stalking is as continuous as it is toilsome.

There are, however, circumstances where excellent sport can be got without any undue exertion, deer being numerous and the forest easy of travel, in consequence of bridle-paths having been made high up the mountain-sides. Gentlemen can therefore in many places mount their ponies at the lodge and ride to the tops or to spying-places from where the stalker may already have discovered deer.

Seeing that all stags annually cast their antlers, it has been to many a matter of surprise that, where stags are numerous, larger quantities of cast antlers are not to be seen during the summer season, even where they have not been collected by the foresters. The tradition that stags bury their horns in the moss is, so far as I am aware, unsupported by any evidence whatever. Many are slow to believe that the deer themselves eat their shed antlers, on account of their extreme hardness. Instances, however, have been recorded of their being seen in the act; and if not sought for at the shedding-time, pieces of them only, three or four inches long, will be found, with the burr end intact, while the marks of chewing are quite visible. A general notion prevails that the cast antlers of stags are eaten by hinds only; but from observations in such places as the sanctuary of Strathconan Forest, which is almost exclusively the habitat of stags, they are found eaten to within a few inches of the base, in the same manner as in places chiefly frequented by hinds. That both hinds and stags make a practice of chewing cast antlers will not be disputed by any intelligent forester who has given attention to the subject.

Sportsmen who have had much experience in stalking must have occasionally shot stags with malformed antlers. Stags with one antler only are very common, and one or more are to be found in almost every large forest. I believe some of them never get the second antler, as I have known the same stag for several years with one antler only. Why the antlers of certain stags should be malformed is a question upon which neither sportsmen nor naturalists are agreed.

The principal reason for the malformation of antlers is, in my

opinion, the result of an old wound, or some confirmed disease. I scarcely ever met with a stag, one or more years wounded, that had not antlers more or less malformed. Very often a stag with a broken leg, whether joined or entirely cut off, has the opposite antler, and sometimes both, deformed. The malformation of antlers may, I think, also be traceable to close breeding. In Jura, and other islands which are the habitat of deer, this peculiarity is found to exist more frequently than on the mainland—hence my reason for attributing it to the above cause.

There are few things which surprise the naturalist more than the growth of the antlers of the stag. Ere many days have elapsed after the stag has shed his antlers, the new ones may be seen making their appearance, and before the middle of August they are often fully developed and free from velvet. Each succeeding year the antlers are larger and generally the points more numerous, until the stag reaches his maturity, about the twelfth or thirteenth year of his age, after which the antlers begin gradually to fall off in size and appearance.

A singular illustration of this fact in natural history is exhibited in the splendid collection of heads in the Castle at Blair Atholl. The antlers of three large stags, named "Tilt," "Merk," and "Banvie," reared and kept in the park, are there to be seen, arranged and marked with the several years in which they adorned the heads of the respective stags, proving beyond question the accuracy of my observations as to the gradual process of development. At from twelve to fourteen years of age the antlers were of immense size, the points reaching as high as nine on each; but after that, as already observed, they began to decline. No doubt high feeding was the cause of the immense antlers, as they are never met with so large in their wild state.

Deer are not so long-lived animals as many people imagine, there being comparatively few which, if left to die a natural death, exceed twenty years of age.

The difficulties of deer-stalking are greatly increased in forests where there are a great number of hinds and harts of two and three years old. These, as a matter of course, are ever ready to apprise the coveted stag, with ten or twelve points, of the approach of the stalker.

In the mountainous district between Loch Eil and Loch Shiel, on the west coast of Inverness-shire, I recently spent a pleasant time in the forest of the Earl of Morton. I had stalked on the same ground with

the same keeper, John Macdonald, about twenty years before, so that we were old friends, and I listened with intense interest to his experiences during that long interval. Among other topics, that of malformed antlers was discussed, and I was pleased to learn that his views and mine were identical. He was in the habit of feeding the deer near his house in the winter and spring months, and a stirk when quite a young beast came regularly to be fed. As the result of feeding, he grew to be a fine animal, and when eight years old carried a head of thirteen points. Casting his antlers early, the new ones grew rapidly, and the velvet was shed in the second week of August. He commenced to roar on the 16th September, and was observed to walk round and through a herd of hinds; but as they evidently had no attraction for him, he wended his way over mountain-ranges towards Loch Sunart. He was shot at in Strontian Forest, fifteen miles distant, and had a hind leg broken above the hock. He was seen by a shepherd endeavouring to get over a wire sheep-fence on his road homewards. Retarded by his broken leg, he had great difficulty, but eventually succeeded. When feeding commenced, he came regularly as before; but in consequence of his wound he was reduced to a skeleton, and being very weak, was kept off by other stags. He used to hide, however, not far off, and when the others took their departure he returned to the feeding-place, when the keeper attended to him, and had opportunities, with the aid of his glass, of noting the injured limb at a comparatively short distance. Within a month after feeding commenced he was able to use it, and in three months was master of the herd. The keeper, who is most observant, having heard that malformed antlers are sometimes the result of an old wound, carefully searched for and was successful in finding his antlers after they were cast. These he sent to the stalker at Strontian, to make certain they belonged to the stag which was wounded there. As the new antlers grew, it was found that the one on the opposite side from the broken limb was minus the brow point. Getting into good condition, he again shed the velvet early, and by the middle of September began to roar. This was observed by the keeper, and as the stag was seen one morning ascending the mountain in the direction of Loch Sunart, the shooting tenant was asked to spend the day in trying to secure him. Spying the corrie where he was last seen, John was fortunate in discovering him lying down far up the mountain-side. He had taken up a most unapproachable position, and as the wind was somewhat

snaky, the stalk was a difficult one. By skilful manœuvring, however, he was approached to within about two hundred yards, and was most accommodating. In a few minutes he rose and exposed his broadside, when he immediately dropped to shot. He was then nine years old. On being closely examined, it was found that the antler, in addition to the brow point lost the previous year, was minus another point. He scaled seventeen stones twelve pounds clean. It was unfortunate that this splendid animal was not allowed to live a few more years, as he doubtless would have been a magnificent beast.

The distance stags travel in a single night is somewhat surprising. The late Lord Tweedmouth once told me a remarkable journey one had taken, he having seen it, when stalking, in one place the one day and in another place the following day considerably over twenty miles away.

Perhaps the most remarkable journey of a stag is one for which I can personally vouch. A hind which had been hand-reared as a pet was presented to Miss Trotter of Mortonhall, and for many years grazed in a park close to the house within two miles of Edinburgh. When the hind was full grown a story was told that a stag had been seen in the park early in the morning, but of this I was somewhat sceptical. Time went on, and my scepticism disappeared when I saw a calf in the park along with its mother. Where the stag came from will never of course be known, but the nearest place is Lord Ancaster's forest of Glenartney, a distance of about fifty miles as the crow flies. When we consider the fences, railways, canal, rivers, &c., he would have to encounter, and how he discovered the hind was there, we must regard this as one of those mysteries in nature upon which we can only speculate.

Even in forests where heavy deer are numerous, it is frequently surprising how few are killed till near the end of September, so closely do they adhere to the sanctuary. It is most annoying to find, day after day, nothing but hinds and small unshootable stirks, while, with the aid of the telescope, numbers of antlered monarchs, like troops of cavalry, can occasionally be seen on the skyline in the sanctuary, miles away. How provokingly they keep in the territory of the sanctuary, as if they were intercepted by a ten-foot fence! About the 26th of September the first roar is heard, and the scene is changed. Groups of hinds which have been seen daily may now be expected to be accompanied by stags worthy of the attention of sportsmen. After this time, whenever hinds are seen, a stag is certain to be with them, and if shot, it will be found



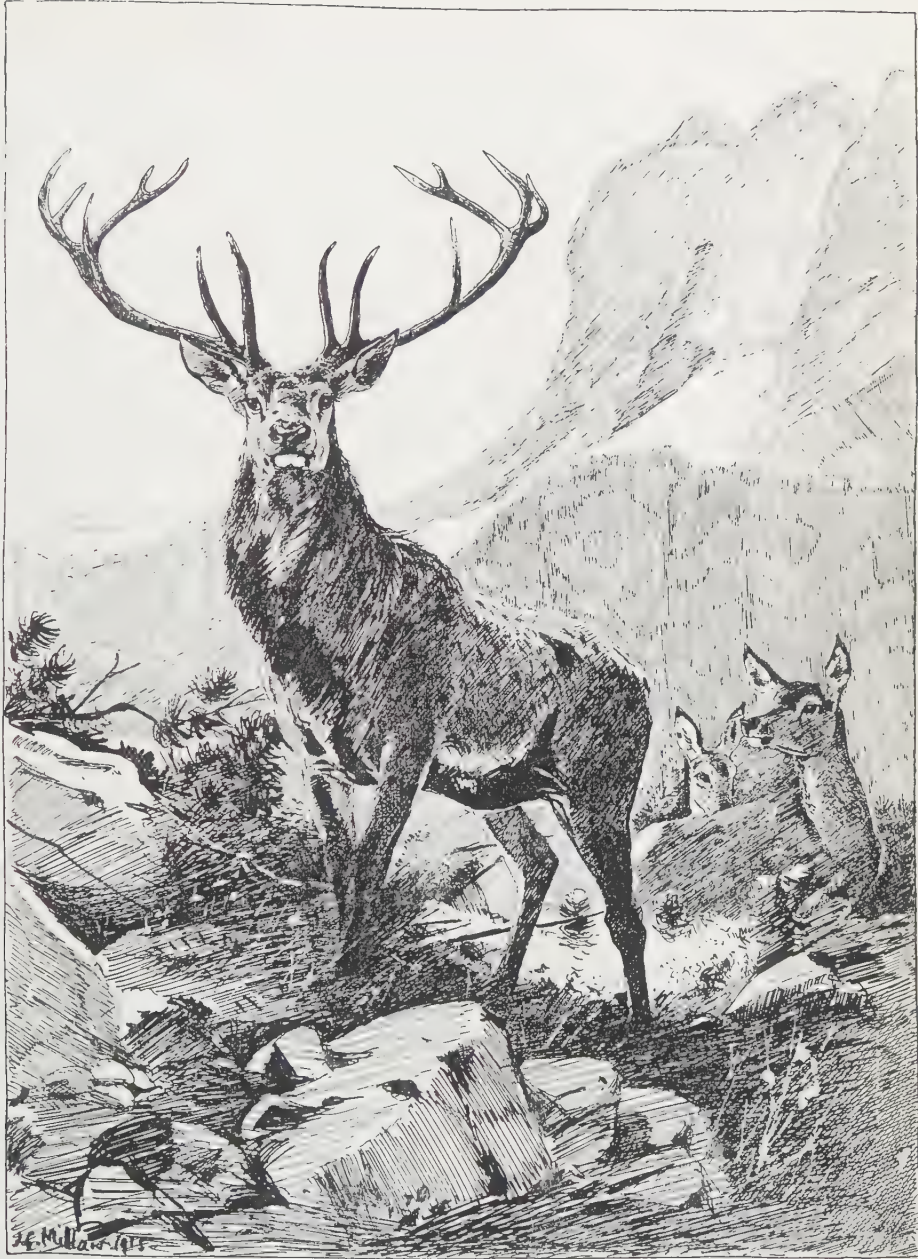
The Master Stag.

the following morning that another has taken its place. The time when deer begin to roar may vary with an early or late season, but, generally speaking, it can be predicted with the same accuracy as the return of the cuckoo or the swallow to the district.

In many forests, which constitute the chief habitat of hinds, no deer of any size are found till near the end of September. The unwary Sassenach reads a glowing advertisement containing a record of the number of stags—"weight up to nineteen stones"—killed the previous year. There can be no mistake here; and, like Brixey of Tomiebeg notoriety, he takes everything for granted and becomes tenant. A month's experience reveals the true state of affairs, and he discovers to his chagrin that in the entire forest there is not a stag with a head worth setting up to adorn his smoking-room. But guests have been invited, and they must make the best of it. The result is that deer six and seven years old are killed, which would have grown to splendid beasts had they been allowed a few more years.

Towards the end of September the big stags from the high corries or the neighbouring forests make their appearance among the hinds, and the monster of nineteen stones which bulked so prominently in the advertisement may at last be secured. Heavy deer are now seen, and the sportsman must "make stags while the sun shines." Stag-shooting, as a rule, terminates on the 10th of October, and even before then many stags are so "run" that the venison is useless. By that time in these high altitudes the weather is generally broken, and violent storms of wind and rain render stalking on the mountains impossible. Even should the weather at this equinoctial season be calm, the hills are frequently enveloped in mist, which is perhaps the greatest enemy the stalker has to encounter.

I can recall an experience at Craigag with the same stalker, now many years ago, with the "monarch" which one frequently hears so much about but seldom has an opportunity of shooting. The "monarch of the glen" was first observed in "Naboth's vineyard," though practically on the march, and the wicked thought that then crossed my mind had better not be produced here. Fortunately prudence and John's good sense prevailed, but the stag and widespread antlers with their fourteen tines bulked as largely in my imagination as if they alone embellished the forest and animated the solitudes of nature. After a night's sleep, broken by the visions of the stag-glories of the morrow, I



In Naboth's Vineyard.

sprang out of bed and pulled up the blind. To my dismay and irrepressible disgust, I could only see a few yards in consequence of an almost impenetrable fog which had settled down upon the scene. After breakfast, however, the confinement of the lodge became unbearable, and John and I started through the mist to a distant corrie where the royal stag was last seen. Seeking the best available shelter, we sat down and waited patiently for the mist to rise. While engaged with lunch, attention was attracted by a rattling on the rocky ground in close proximity. On looking up five stags, including the fourteen pointer, galloped past within a few yards. In sport, as in life, great opportunities sometimes take us unawares and unprepared. The rifle was in the cover, and before it could be got out and cartridges inserted the fleet-footed herd had disappeared in the mist.

However disappointing the day it had not been without its compensating pleasures. We were at a high altitude and the mist for a time cleared off the top of the mountains, where there was exhibited a phenomenon which, though common in the Alps, is not often seen in this country. The sun, now well round in the western sky, shone out brilliantly and we ascended to the summit. Beneath was thick mist, and the "Spectre of the Brocken" was revealed on the abyss. The figures of John and I, with the rifle, appeared with wonderful distinctness and brilliancy, having the appearance of being surrounded by a circular rainbow. Walking on, attention was attracted by about a dozen black-game rising and flying downwards, then disappearing in the mist. The thought occurred—was it by a wise provision of nature that the birds were induced to venture nearly to the summit of this mountain to afford prey for a pair of eagles which had been seen daily flying in aerial circles in that wild and mountainous region? This seemed a natural deduction, but speculation was set at rest by our coming suddenly on fourteen birds, which quickly took to flight. I went to the spot where they had been sitting and discovered crowberries growing in profusion, which was doubtless the attraction. But the same Providence which sent the king of birds to the mountain-tops planted the crowberries which attracted the eagles' quarry.

One day a blackcock flew off a rowan-tree which was perfectly red with berries, and the following day I witnessed a grey-hen beneath a tree where the ground was strewn with the fruit blown off by the wind. This, coupled by the fact that grouse, capercaillie, wood-pigeons,

missel-thrushes, starlings, &c., devour rowan berries with great gusto, affords presumptive evidence that they must also be included in the bill of fare of black-game. Not only so, but when "gralloching" a stag, I noted the contents of the stomach, and found among other assimilated food a large number of the red berries in question. When elk-hunting in the immense forest in the valley of the river Glommen in Norway, and when following the trail with an elk-hound, I noted that the huge animal had been tearing off the leaves and twigs of branches as he walked along. Rowan berries were devoured with the leaves, as I subsequently discovered by dissection of the stomach.

Learning from the keeper that an old billy-goat with immense horns frequented a rocky mountain at a high altitude overlooking Loch Shiel, I resolved to have a try for him. Not wishing, however, to disturb ground which was the habitat of stags, and as Dr Debenham from London was going to stalk on that beat, I thought I would accompany him, and if the goat was sighted I might keep an eye on him till the doctor was sufficiently distant, so that his sport would not be interfered with by a shot. Punctually at ten o'clock the doctor with his "better half" arrived, and after walking a short distance we embarked in a boat and rowed down the Callop river till it empties into Loch Shiel near the monument of the ill-fated Prince Charlie, whose figure appears as if anxiously looking up Glenfinnan for the arrival of the nine hundred Cameron men who, under the leadership of Lochiel, rallied round his banner unfurled there for the first time. Rowing down the loch near the rugged mountain-side for two or three miles, we disembarked near the keeper's house at the lochside at Guisachan corrie, which is a favourite haunt of deer. Rain was falling, not in showers but in sheets, as if we were about to be visited by a second deluge. Fortunately for a time it cleared off and we started to ascend the hill up the corrie, which is a long and steep climb. I was sorry for the lady, but she seemed as game as any of the party, and I could not help reflecting on the words of Byron :—

"Though sluggards deem it but an idle chase,
And marvel men should quit their easy chair,
The toilsome way, and long, long league to trace,
Oh ! there is sweetness in the mountain air,
And life that bloated ease can never hope to share."

After a long and steep climb, every bit of ground being carefully

spied as it came into view, we at last gained the summit. It was by no means level, but consisted of a series of rocky ridges which rendered seeing any distance impossible. Peering over one of the ridges, we got our eyes on some goats. There were a number of "nannies" with kids and a few small "billies," but the large one we were in quest of was conspicuous by his absence. We therefore made for the highest point, from which we had a view of the valley from Glenfinnan, with the numerous arches of its long railway viaduct, to Banavie, as well as right down the long and narrow Loch Shiel. Here we sat down to lunch, and we carefully surveyed our surroundings. What a magnificent panorama was spread out before us! Glenaladale House, peeping out from among the dark woods beautifully situated amidst an amphitheatre of hills, with scenery of mountain, wood, and water, makes it one of the most picturesque spots to be found in this or any other country. The foliage, which had assumed its autumn tints, the withering bracken, the hazel copse, the golden birch, and the rowan-tree, all gave the feeling of quiet and peaceful contemplation. The day had cleared up, and nothing could be more charming than the mixture of colour and light and shadow, mountain and sea and sky that met our gaze. Loch Eil stretched away towards Fort William, overshadowed by the mighty bulk of Ben Nevis. All around peaks and ridges stood in juxtaposition, as if vying with each other which would be highest. The high peaks in Achnacarry Forest, which sportsmen must long regard with a melancholy interest from its connection with the sad fate of that noble scion of the House of Buccleuch,¹ stood out against the horizon. The Atlantic Ocean, upon the bosom of which Coll, Tyree, Rum, Muck, and Eig could easily be distinguished, "like emeralds chased in gold," with the Outer Hebrides looming in the distance. The beauty of the district was noted by our late Queen Victoria, who in her 'More Leaves from the Journal of a Life in the Highlands,' says: "As we suddenly came upon Loch Shiel from the narrow glen, lit up by bright sunshine, with the fine long loch and the rugged mountains, which are about 3000 feet high, rising all around, no habitation or building to be seen except the House of Glenaladale, which used to be an inn, and a large Catholic church, I thought I never saw a lovelier or more romantic spot or one which told its history so well. What a scene it must have been in 1745!"

Where we sat water clear as crystal came welling forth from a

¹ The Earl of Dalkeith was accidentally killed while deer stalking on 17th September 1886.

spring, then forming into a little rill found its way down the mountain-side till it joined another of larger dimensions. The bright shades of green of the various creeping plants that spread over the surface, blended with the rich orange, brown, and yellow tints of the lichens on the rocks, added to the beauty of the scene.

The day was now wearing away, and on rising we descried a stag and some hinds hieing westwards towards where we had crossed. It was interesting to see them halt as they approached our tracks. They did not seem to be much alarmed, but suspecting danger they turned at right angles and soon disappeared. John remarked, "It is a good beast," and he thought we would find him in the next corrie. Nor was he wrong in his surmise, as on reaching a place where he could spy, he found the herd exactly where he expected them. It would be easy to "get in" on them, but unfortunately we came unexpectedly upon half a dozen goats, which scampered off across the corrie. This was interpreted by the deer as a sign of approaching danger, and they quickly took their departure very much scared. It is surprising how quick deer are to take alarm at the cackle of a startled grouse, the discordant croak of a ptarmigan, the scream of a pewit, a hare, a fox, a roe, and, as has been seen, goats, or the disturbed movements of any living thing. On one occasion when stalking in Fealar Forest, we spied a number of hinds with a fair stag among them about a mile distant. Walking a short distance to a convenient place to spy in order to make certain the stag was worth going after, a fox jumped up out of the heather and galloped off, running straight in the direction of the deer. Watching them through our glasses, we observed the fox run close past them, when they at once took the hint and made off. Instinctively they seemed to know that Reynard had been startled by an enemy. At other times we have spied a fox in the evening pass right through a herd of deer quietly feeding, and they took no notice of him, well aware his movements were natural.

Observing that we were done with the herd startled by the goats, John hurried on and shortly after spied deer far below us on the mountain-side facing Loch Shiel. It became very dull and dark, though only four o'clock, and rain began to fall heavily. The doctor was fearing a blank day, and both he and his good lady were eager to get on.

No matter how fashionable a man may be, how accustomed to luxury and the good things of modern civilisation, though perhaps unaware of

it, the primordial instinct—the instinct of the chase—the instinct that urges him on amidst the rocky gorges and barren waste lands of our Scottish mountains—is deeply rooted in his breast. He may not realise that he is endowed with this instinct, but it is there all the same. It has been handed down to him, like hereditary instinct in a bird or animal, from the aborigines of the country in prehistoric ages, who, in order to acquire flesh for food and skins for raiment, had to pit their human intelligence against the watchful instincts and sagacity of the brute creation.

However much of the inheritance above described Dr Debenham had handed down to him, it is certain his good lady had much more. Deer were spied far beneath us, and as the wind was right, and the animals on the way down to the loch, we quickly wended our way in their direction. As we got nearer it was seen the stalk was more difficult than we imagined, and much concealment was necessary. As is well known, the fewer people that attempt to “get in” on deer the better, and I kept back along with the gillie. Concealed behind a huge monolith, it was most interesting to watch them going through all the tortuous windings of the stalk, John crawling first with the rifle, the doctor behind, while the lady brought up the rear. It was raining in torrents, and to see her at one time sliding downhill feet foremost, at another crawling on her hands and knees or wriggling like a serpent in a wet moss-hag, convinced me that primordial instinct was deeply rooted in her breast. At last I observed John draw the rifle out of the cover, and the doctor wriggled himself forward, took the rifle, and after a deliberate aim, pressed the trigger. The stag dropped to shot, and the report echoed and re-echoed in the rocky chasm. The shot was down a steep hill, and when the stag fell John remarked, “Well, he’s venison.” He lay quite still, and before going down they sat and lighted their pipes. This was a great mistake, as I have seen deer drop to shot, get up again, and escape to pine and die in their mountain solitudes. The stag soon began to move his head, and finally got on his legs. We started to go down the hillside after him. He descended towards the burn, gradually quickening his pace, though occasionally staggering. Crossing the burn, he proceeded to face the only pass up the other side round a corner of the hill, an exceedingly steep place. Once he had to stop for a minute, lying on some steep rocks, and looked as if, in his struggles to surmount them, he would overbalance and fall over. Taking

his rifle, John hurried on with the view of despatching him. When we got to the pass we found it very steep, in some places necessitating the catching hold of tufts of grass, &c., in order to assist us upward from rock to rock. It was really surprising how a wounded animal could get along at all. The pass led round the side of a very steep burn running between two hills, with cliff-like sides, rocky projections, tussocks of grass, bracken, and rank-growing heathery tufts—in fact, one of those places where, if you do make a slip, it means being dashed to pieces. Following John up the pass, we got near him as he was taking aim at the wounded animal high above him. There were his head and antlers standing out against the dark skyline as he struggled to clear some rocks. When the bullet struck him his head sank down, and a moment later he was rolling down the declivity. Rolling from one rocky projection to another, he gained an impetus: each time the circle seemed to become greater, and the pace increased till from rock to rock it became really terrible. Finally he struck a projection, and from it ricocheted into space 300 feet of sheer descent. I fancy I can see him now, legs, body, and head against the sky of that dark rainy evening, hurtling through the air, to strike the precipices on the other side of the gorge a long way below us, and from there bumping again into the rocky burn still farther below, whilst we involuntarily listened for the horrible thud we knew must come, to be followed by its echo up the steep gully. It was a curious sight, and I don't think I wish to see it again. I certainly never wish to hear the thud; but it was comforting to know that the sufferings of the poor brute were past. We found him lying in the burn in a shallow pool, just above a small waterfall, reminding one of some Landseer picture. As we were now at the march, and miles from where the boat was left, the gillie was sent to fetch it while the stag was dragged down to the lochside. It was some time before the boat arrived, and there was no shelter from the pouring rain. Eventually we got the stag into the boat, and were preparing to row homewards when the Glenaladale yacht, which was bringing the sportsmen home from a distant beat, was steaming up the loch. They kindly stopped, and taking us in tow, we soon reached the top. Rowing up the Callop river, we disembarked at the boathouse. A walk of a mile brought us to the keeper's house, where there was a blazing fire. Mrs Macdonald provided us with dry clothing, and soon we were seated at her hospitable board. Thus ended a day's stalking which will always be to me a pleasing

remembrance. The doctor left shortly afterwards, having a drive of eight miles to his house, and I went to bed, with the view of rising early to start for a distant beat.

He must be a very unimpressible being who can lie long in his bed on a fine autumn morning, when the prospect of a shot at a royal stag is not only possible but probable. To rise soon after daylight and have a walk before breakfast among the hills in the finest air in the world, the charm of the morning, with the wind suitable, the grandeur of the mountains, the roaring of stags in every direction, and the beauty of the surrounding country, fill the true sportsman with unspeakable pleasure. Breakfast was arranged to be early, and as I sauntered about, mentally singing—

“ My heart’s in the Highlands a-chasing the deer,
A-chasing the wild deer and following the roe,
My heart’s in the Highlands wherever I go,”

I was suddenly awakened from my reverie by a call to breakfast. After doing justice to the venison steaks, &c., we quickly got ready for the hill. Two gillies and a pony were in attendance, and shortly after we were trudging along a track which, I was informed, led over the mountains to Loch Linnhe. After walking a mile or so we got our eyes on deer, and with the aid of our glasses noted amongst them a large animal. John proposed, however, that as they were near home we should go on to the distant corrie as arranged, and possibly we might have a stalk at them on our return. This seemed a sensible suggestion, and we trudged on as before. After a walk of some miles deer were again spied. They were dotted all over the hillside, and seemed in a most difficult place to stalk, chiefly in consequence of their numbers. Every one with experience on the hills is aware that the larger the number of deer, the greater the difficulty in approaching within range of the one selected for the shot. Stags can frequently be approached by their antlers being seen, without requiring to show himself at all. The eyes of hinds, however, are near the crown of the head; and ever vigilant with eyes, ears, and nose, it is sometimes impossible to get near a stag when surrounded by such faithful sentinels. Keeping the ridge of the mountain between us, we ascended to the summit and stalked down above them. They were a long way below us, and ridge after ridge was carefully searched with the glass before attempting to proceed. By many it is considered a

drawback to deer-stalking that one has to act pretty much the part of a machine. The sportsman for the time being must submissively bow to the dictates of the stalker, who entirely thinks out and manages the plan of campaign. His orders are imperative, no matter though you have to plunge through the ice-cold waters of a mountain torrent, or to wriggle on your stomach through a wet moss-hag, and lie for hours afterwards, exposed to a biting wind, waiting for the stag to rise. To use the words of Scrope, the sportsman, when necessary, must "down to hand like a pointer." The owners of glens and corries can stalk and shoot without assistance if they feel so inclined, but the invited guest has no alternative but to act as described; and if success is to be attained, especially on strange ground, this is the best policy to pursue. Personally it afforded me much pleasure to observe the zeal with which the stalker pitted his intelligence and skill against the watchful instincts of the object of our pursuit. Certainly no one unacquainted with the ground could have successfully managed the stalk. Stooping, crawling on hands and knees, and wriggling like a serpent had again and again to be gone through. Right below us were some of the hinds busily feeding, and we had to slide downhill for a considerable distance with them full in sight. Fortunately for us deer seldom look uphill. Crawling forward about ten yards, John signalled me forward beside him, and handed me the rifle. I could see numbers of hinds, but where was the stag? John whispered in my ear to raise my head a bit, and I then saw the object of our pursuit. He was lying down about seventy yards distant, but being partially hidden, was most difficult to see. By raising my head I had attracted the attention of a hind which a minute before had been quietly feeding. She kept steadily gazing in my direction for a considerable time, and, peering through among the grass, I gazed at her. After a time she commenced to feed, but after taking a bite or two, she, quick as lightning, raised her head and gazed again. On two occasions she walked forward a few yards, as if determined to make certain whether I was a hidden foe. Again she resorted to the trick of pretending to feed and suddenly raising her head. I knew this habit, and was prepared for it. I kept perfectly still, in order that she might become satisfied that she was the victim of an optical illusion. How long she would have gazed I had no means of knowing, as John, by pressing my leg, indicated that the stag was up. He walked slowly straight away from us, and of course I did not want to destroy his haunches. At last

he stood and exposed his broadside. Thinking he was 170 yards distant, I took the sight pretty full and pressed the trigger. I found I had taken the sight rather full, as the bullet struck him too high in the shoulder, but of course disabled him. He had a nice strong head with ten points. The gillie was despatched for the pony, which had been left where we first spied the herd. When the pony arrived we put the stag on his back and sent him home. Four hours intervened between the time we first saw the deer and fired the shot. It was a long stalk, intensely interesting, finely conceived, and brilliantly executed.

Making tracks homewards for a mile or two, as soon as we got within spying distance we had a search for the deer seen in the morning. They were still there, though considerably higher up the mountain-side. As they were still far distant, we wended our way towards them till such time as we could make out with our glasses what kind of beasts they were. It was a dull dark afternoon, and before I could make them out John shut up his glass with a bang, remarking, "There is a good beast whatever." In order to get above them, so as to avoid their getting our wind, it was necessary to cross a deep gully. Descending to the burn, we scaled the steep face on the other side and proceeded till we got sufficiently near to spy and make out what they were. "By Jove!" exclaimed John, "there is a royal with fine wide-spreading antlers." "We must," I replied, "be very careful and endeavour to secure him." Accordingly we proceeded with great caution and gradually got nearer. When about half a mile distant, a hind which, hitherto unperceived, had got our wind, scampered uphill several hundred yards in advance of us. She was noticed by the hinds and our royal, who, realising there was danger somewhere, also immediately began to ascend. They were far below us, but we knew when they got higher up they would scent us, so that any chance of their settling was not to be entertained. They were in a slight hollow, and a low ridge intervened between us. John thought we might get a shot if we could get to the ridge before they got our wind, and off we ran as hard as we were able. Being my junior by a good many years, John soon out-distanced me in the race. The three or four hundred yards were quickly got over, but on nearing the ridge I observed John drop on his knees and crawl for fifteen or twenty yards. Of course I followed suit, and on getting up to him he handed me the rifle. Looking over, I saw the lordly animal passing in front, little over a hundred yards distant. With heaving chest and gasping for breath I

fired from the shoulder, but, as was to be expected, made a complete miss. Opening the breech which threw out the empty case, I fired again, with a similar result. Observing a moss-hag a few yards off, I sat down, leant my back against it, rested my elbow on my knee, and took aim. The stag, with the hinds, were galloping uphill, straight away from me, and I refrained from firing. They were quickly increasing the distance, and the royal head seemed destined to be lost to me and my heirs for ever. Necessity quickens invention. I pushed up the 200 yards' sight, and as they were considerably over that distance, I gave a loud whistle on my fingers. This had the desired effect, as both hinds and stag stopped and looked back. The royal exposed his broadside, so, holding my breath and drawing a bead on his heart, full of confidence, I pressed the trigger. "That must have him, John," I remarked. "I fear not," he replied as the deer bounded off; but immediately the royal gave a stagger and John shouted, "Yes, you have him!" He was in the rear of the hinds, but he turned downhill for twenty or thirty yards, when he tumbled over. John hurried to him, but, being blown with the race, I walked leisurely up, and found the "monarch of the glen" had breathed his last. Leaving John to perform the usual obsequies, I hastened homewards to inform the gillies with the pony where to go for him.

Many people ask what pleasure it can be to toil up those rocky mountains simply to kill a beautiful and inoffensive creature like a stag. Perhaps I cannot do better than reply in the words of the authoress of 'The Hill-tops in the Black Mount,' that "real enjoyment and pleasure consist in the close intercourse with nature — the solitude, the apartness, the constant variation of light and shade, the mystic vagaries of the fleecy clouds, the grandeur of passing storms, the tender sadness of the setting sun leaving his last rosy kiss on the brows of the peaks, and the quiet peace of evening as we turn our steps towards home."

Sport, to my mind, in no way depends on the number of victims that may fall to the rifle in a single day. I have had many enjoyable days' stalking without the rifle ever being taken out of the cover. A description of such a day may be worth recording. It was in the delightful island of Jura. Starting from Ardlussa House up the glen drained by the river Lussa, the keeper and I had a long walk before reaching the summit, a little above the spot where the

river takes its rise. In the lower reaches of the river, as well as on the Glengarisdale side of the island, I was interested to observe royal ferns growing in great profusion. Deer are very fond of the royal fern. They destroy large patches by cropping them when the shoots are young and tender. In my peregrinations in different parts of Scotland I have frequently come across the royal fern, but never in such abundance as in Jura.

Leaving the Lussa we struck off at right angles, following a tributary for some distance, and eventually gained the summit of Ben Garisdale, which rises to an altitude of 1194 feet. Though shootable stags were spied on the way, a big royal which had recently been seen had so whetted my sporting instincts that I resolved to have him or none. Searching every nook and cranny in vain, we proceeded northwards, spying every bit of fresh ground as it came in sight. Still nothing was to be seen of the large royal, and we continued northward, the breeze blowing from that direction, climbing to the summit of Cruach-na-Seilchaig, 967 feet in height. It was a lovely day, and we sat down to survey the surroundings. The scene was simply superb. With the aid of our glasses we studied the dreaded whirlpool in the Gulf of Corrievreckan, between the islands of Jura and Scarba. It is about a mile across between the two islands; and as it was flood-tide, the whirlpool had a wild and tumultuous appearance. The whirlpool, it is asserted, is caused by the tides flowing over a dozen miles an hour and meeting round a pyramidal rock, which rises from the depth of a hundred fathoms to within fifteen fathoms of the surface. The result is a subaqueous overfall, causing in its turn infinite gyrations, eddies, and counter-currents. The roar of the whirlpool is heard at a considerable distance, and reverberates among the rocky cliffs of Scarba,—

“Scarba’s isle, whose tortured shore
Still rings to Corrievreckan’s roar.”

The water whirls, seethes, and boils, and it is regarded as very dangerous, seldom, if ever, approached by ships. Many legends are related of this famous whirlpool, such as its being the haunt of strange and horrible sea monsters, including mermaids. In Leyden’s version of the Gaelic it is asserted that Macphie of Colonsay, in passing the gulf, was carried off by a mermaid, and was “for years kept in pleasant durance in a cavern beneath the sea.”

Descending in an easterly direction towards Barnhill, whence we could reach Ardlussa along the coast, we proceeded in that direction. Quite a number of good stags had been spied in different corries, but the "muckle beast" we were in search of was conspicuous by his absence, so that the royal head I had so much coveted was destined not to be mine. Perhaps some may think I was disappointed; such, however, was not the case. We had spent a charming day among the mountains, with abundant opportunities of studying deer in their native solitudes, so that the day was not without its compensating pleasures. With advancing years the humane instincts of the sportsman in a large measure generally take the place of the bloodthirstiness of youth, and I turned homewards, happy and contented. Reaching Barnhill, we had a walk of eight miles, chiefly through natural wood with which the coast is engirdled, to Ardlussa. Despite the long day on the hill, the walk home was most enjoyable. Donald, the keeper, was a companion of my youth, and we had much in common to converse about in regard to our early associations. Besides, every mile had attractions peculiarly its own. Sometimes we were close to the shore, where cormorants were here and there sitting like sentinels upon the rocks, reminding one of the passage where Milton depicts Satan as sitting "for prospect" on the tree of life. Ever and again the mighty bulk of a whale appeared above the surface, evidently following shoals of herrings up the Sound. Thousands of sea-fowl were disporting themselves upon the waves, and I could not help reflecting on Byron's lines:—

"There is a pleasure in the pathless woods,
There is a rapture on the lonely shore,
There is society, where none intrudes,
By the deep sea, and music in its roar."

At other times, when in the wood, the sea was hidden from view. Darkness set in before we reached Ardlussa, but after passing Lealt we got on to an excellent road which simplified our progress. Thus ended, without firing a shot, one of the most enjoyable day's stalking it has ever been my privilege to enjoy.

The following day being the Sabbath, and no church within many miles, I spent part of it strolling through the woods and by the rocky shore. Though there is no church, there is a burying-ground, and I indulged in an hour's meditation among the tombs. An "auld kirk-

yaird" is always interesting, and I never fail to visit one in a rural district when time permits. The first time I saw Ardlussa burying-ground it was a wilderness of bracken, only the tops of the tombstones being visible. I could not help thinking at the time that if any one aspired to imitate Gray by writing another "Elegy on a Country Churchyard," the one at Ardlussa would be well worth consideration. Now, however, it is kept in better order, and weeds are carefully mown. While the inscriptions on some of the tombstones were somewhat amusing, one especially attracted my attention. It read thus:—

MARY M'CRAIN,

Died in 1856, aged 128.

Descendant of Gillour M'Crain, who kept one hundred and eighty
Christmasses in his own house, and who died in the
reign of Charles I.

Unfortunately, it is not recorded how many Christmases Gillour M'Crain kept in other people's houses, so that his age remains a mystery.

The following morning, Donald and I started at nine o'clock for a long day on the hill. We had not proceeded above a mile when we spied a stag surrounded by his seraglio of hinds. He was a heavy animal, with a good head, though only a ten pointer. We got into a boat and rowed up the loch under the bank, thus keeping out of sight. The deer were in a most unapproachable position. There was no chance of getting near without being seen, except by giving them our wind. For hours we lay, in the hope they might move and give us a chance, but as the stag and most of the hinds were lying down, Donald suggested moving them on the chance of their coming within range of where we were. He started on this mission, and, on his going round they quickly got their eyes on him, and at once moved off, but in the opposite direction. To have followed them in the hope of their settling and getting another stalk was out of the question, as by doing so we might have trespassed on a beat where another party was out.

In the morning, from the gunroom door, a number of stags were spied far up the mountain-side, and Donald suggested having a try for them. This necessitated a long roundabout walk to the summit of the mountain, otherwise they would get our wind. It took us a couple of

hours, and on the way we saw a number of stags, but nothing of great size. Keeping under the skyline, we carefully spied the ground as we proceeded. At last we got our glasses on some big beasts, but at a distance, and the sky being dark and dull, we could not make out the nature of their antlers. The day was wearing away, and we tried to hurry towards them, but many deer were in our way, and this increased our difficulties. Knowing that if startled deer, or the disturbed movements of any living thing, are seen, others quickly take the hint and move off, we had much manœuvring before we got into a burn, in which we could get down unobserved to within shot of where the stags were. Alas! we discovered a hind and calf which it was impossible to go past without being seen. Day was closing, and we had no alternative but to let her see us. Fortunately she, with the calf at her heels, ran westwards, and a ridge prevented them being seen by the stags. How often we crossed and recrossed that burn in an endeavour to keep out of sight, sometimes slipping off the rocky boulders up to and over the knees, need not be recorded, but it only added interest to the sport.

Getting to where we should be within range, on peering over the bank we observed the six stags making off downhill, evidently for the better pasturage on the low ground. None of them had good heads, but a black one—he had been rolling in a moss hole—had a good body, and Donald suggested shooting him. We therefore hurried after them, when they disappeared over a ridge. Cautiously following, we found they had again disappeared, another ridge intervening. Running to where we could peer over, they got their eyes on us, and, as little of us could be seen, they kept staring, evidently uncertain what we were. The black one was broadside on, about a hundred and fifty yards distant, and though it was nearly dark, I fired from the shoulder, the bullet finding the right place. He scaled seventeen stone, but had only eight points.

The following day my host wished to show me the extreme north end of the island, which is his best stag ground, but I refused to take my rifle. Sailing there in his yacht, and ascending the hill, we, after some walking, got our eyes on a stag. It was an easy stalk, and on whistling to startle him he jumped up and stood uncertain where the noise came from, but immediately he dropped to shot from the unerring aim of my host.

Pursuing our way among the finest deer ground it has ever been

my privilege to witness, we shortly again spied deer. Getting within four hundred yards, I kept back and watched my friends going through the intricacies of the stalk. At last they reached a small ridge and crawled to the top, where they lay like skins spread out to dry as they peered over at the antlers of the stag. Soon he got up, and was stretching himself when, like the previous one, he was shot through the heart.

After a long climb uphill, and crossing a considerable bit of country, four stags were sighted, and my host insisted on my going to shoot one. Off I went with the under-keeper, who was also with us. We had a long way to go round in order to avoid them winding us, but eventually getting near, we took our bearings. A steep bank was within a hundred yards of where the stags were lying, and by crawling a bit we thought we could reach it. If successful, an easy shot over the top of the bank seemed likely. On reaching it we found it almost perpendicular, but, by seizing the heather, I managed to pull myself up. I had got about half-way when I observed the antlers of a stag away to the right. The wind must have been snaky, and they had evidently scented danger, and were running off. I was in a difficult position to shoot, as I could not stand up on the steep bank or get a lean for the rifle, so, in a twisting manner and slipping down, I fired and missed. Bang went the second barrel, with a similar result. I loaded and tried another shot, but was glad I had completely missed, and had not sent one away wounded to pine and die in its native solitudes.

We then wended our way to where my host and Donald were watching us with their glasses. It is a great mistake to begin to make excuses for missing, as, however justifiable they may be, nobody believes them. I naturally expected a good deal of chaffing from my host when I got up; but no, the dear old soul only said, "I thought you would have got one."

Making tracks in the direction of the coast, we soon spied more deer, but as we observed the yacht coming to take us home, we descended and at once got on board. Thus ended another pleasant tour among the mountains, and though after such days I invariably slept the sleep of deer-stalkers and the just, I must confess to having dreamt of the four stags and the awful misses.

Little did I think that the two stags I had that day seen fall to

the rifle of my host would be his last. Shortly after he was seized with a serious illness, which, alas! had a fatal termination. Numerous sorrowing friends mourn his loss, many like myself being recipients of his bountiful goodness.

It is a great mistake, often committed, to run after a stricken deer. Unless the bullet has lodged in a vital part, the wounded animal, discovering its enemies in pursuit, is sustained by the consequent excitement, and will thus strive hard, and often successfully, to keep up with the herd for a very considerable distance. When the stalker is positively certain that the shot has taken effect, there will frequently be a loss of blood from the wounded part of the animal. By remaining quiet and watching the wounded deer, he will be able by the aid of the glass to discover its movements. If it sees no one in pursuit it will naturally fall behind, or turn to the right or to the left, as shall be determined by the incline of the ground. As soon as it finds itself isolated from the rest, it will lie down in some spot where it is not likely to be observed. In this position the wounded part will speedily become stiffened, while the probability is a sickening sensation will take possession of the deer. After the lapse of a comparatively short time, by ordinary prudence the wounded animal may be approached till within a very short distance and speedily despatched by another well-directed shot.

It is now many years since I spent a couple of days at Glenbruar with old friends. The late Sir Wm. Ogilvie Dalgleish was tenant of the shooting at the time, and Peter Campbell, the stalker, was killing hinds and sending on the haunches. There had been a fall of snow, but with the advent of fresh weather much of it had melted, and the ground had a piebald appearance, half-black and half-white. I accompanied Peter on a hind-shooting excursion, and we soon spied and stalked a number of deer. He handed me the rifle—a double-barrelled Henry express—and I prepared to shoot. The deer had heard or seen us and were making off. They had not far to run to get over a ridge, so selecting a large hind, I fired, but she kept on and soon disappeared from sight. Peter thought I had missed, but conscious that I was right when I pressed the trigger, I did not even fire the second barrel; so I said no, and that we would follow the trail for a bit. I was struck with the intelligence displayed by the deer in keeping as much as possible on black ground, evidently aware that they would be much more easily seen on the snow. Crossing the ridge the tracks were easily followed on the

Alexander Henry (celebrated) magnanimously improved in fine swell & execution & findings can be obtained in fine colors. Lovely French without stocks & detent safeties - masterpieces of the gunmakers art.

soft ground, and more so on the snow. After following on for half an hour or so, Peter said it was of no use going farther, but I could not make myself believe that I had missed, and suggested persevering a little longer. We had not proceeded far when, at a point where the spoor crossed over snow, I discovered a spot of blood. Peter at once admitted I was right, and soon more blood spots were found. Proceeding with caution and spying the ground in the direction the trail was leading us, we discovered the hind lying down in a small hollow. We therefore made a detour in order to get behind her and, if possible, drive her homeward, as it was impossible, owing to the snow and soft nature of the ground, to take a pony to the spot. Getting round and approaching her, she got up and ran at a good pace in the direction wanted, till she disappeared over the ridge near where she was shot. When we gained the ridge and looked down she could not be seen, and again we had to follow her tracks. Fortunately they led us in the direction of home, and at last she rose out of a small hollow where she had tried to hide. As we were now in the valley it was impossible for her to get out of sight, and the way she seemed to gather strength and hurry on greatly surprised us. Crossing the Bruar river, she began to climb the mountain opposite. As she ascended she soon left black ground behind her and got on to snow, where she was easily seen. As we ran on we observed a young nephew of Peter looking at the stricken animal. Peter shouted to him to let "Oscar" and "Shullach" out of the kennel. These two fine deerhounds quickly got their eyes on the hind, and immediately set off in pursuit at a pace at which only dogs of that breed can travel. As the hounds got near, the wounded animal, finding itself unable to face the steep hill, turned up the valley and ran in a slanting direction towards the river. Anxious to see as much of the chase as possible, I ran up the river-side, and at last met the deer running down in the centre of the stream with the two hounds in pursuit. The longer legs of the deer gave it an advantage over the dogs in the rough bed of the stream, and it struck me at the time that the deerhounds did not display much intelligence in following as they did. How quickly a collie would have acted otherwise, by getting ashore and heading the deer! Avoiding the windings of the river, I easily kept up, and when exactly opposite Glenbruar Lodge I shot the hind in the head. Wading in, I dragged her ashore and examined her, anxious to learn where the bullet had struck. I found it as near as possible where I expected when

I pressed the trigger. On making a post-mortem examination, I found the expanding bullet among the food in the stomach. There is no doubt that had she been left where she first lay down she would have sickened and died, but the excitement of the chase kept her up as described.

I have read somewhere, in a work on deer-stalking, that the difficulties in getting within range of deer which had strayed from the forest into sheep-runs were greatly increased by reason of their being constantly on the outlook for shepherds and their dogs. This I regard as a popular mistake. Speaking not from mere theory, but from practical experience, I should much prefer to stalk deer under the latter circumstances than in a forest where they are numerous and where shepherds and dogs are never seen. As already pointed out, deer, like all other sorts of game, very soon discover the design of the intruder; and when that is of such a nature as not to threaten them with danger, they become to a large extent indifferent as to his presence. The difficulty of stalking deer among sheep does not arise from their being on the outlook for shepherds, but from their being quick to discover anything unusual by the startled appearance of the sheep. No sooner do the deer perceive one or more sheep running, or even standing upon a piece of rock or boulder looking steadfastly in any given direction, than they, without hesitancy or delay, make off, to the disappointment and mortification of the stalker.

A few days before the season of stalking terminates, it is no unusual thing, in some of those forests where deer are numerous, to devote one or two days to a "drive," which is perhaps the most exciting of all sport. As in the case of such minor enterprises as grouse and black-game driving, very much depends upon the drawing-up of the programme of action, and its being rigidly adhered to by both sportsmen and drivers. As in the field of battle, everything depends upon most perfect discipline and an intelligent apprehension of the situation by all concerned. If the right or left wing of the beaters is too far in advance or too much in the rear, or if a sportsman is placed in a false position or allows himself, by impatient curiosity, to be seen, or if he is too late in taking up the position assigned to him—any of these mistakes may to a large extent spoil, if not altogether prove fatal to, the successful carrying out of the enterprise.

As deer are much more easily driven uphill than otherwise, it is desirable that the rifles should be placed in the "passes" on the rising ground. If, however, the forest is of limited extent and a mountain-

ridge the march, they, as a matter of course, must be driven from the tops downwards. In such circumstances half of the beaters should go to the extreme right and half to the extreme left, and thus make their way round the march till they meet in the centre. A beater should drop off at every conspicuous part along the skyline and at the principal "passes" which the deer are likely to take if they face the drivers. Should deer be observed beneath, a beater ought also to be stationed above them, in order to startle them when the signal is given to advance. As the arranging of the beaters necessarily requires a considerable time, the head forester, knowing where every man should be placed, will take care to have the rifles stationed in the principal "passes" on the hill-tops on the opposite side of the glen—it may be several miles distant. Every man in his position, the forester in charge will go to a conspicuous place and show a flag, indicating that all is ready, when the beaters will simultaneously advance. When deer are startled, they are most reluctant to go downhill, naturally running along the hillside, tending steadily upwards, in order to gain the summit. A glimpse of a beater above them will make them quicken their pace forward, or possibly they will turn back; but should they discover beaters above them all along the ridge, they will then descend to the plain and make for the rising ground on the opposite side of the valley. It is a great mistake for beaters, when the deer are inclined to break back, to show themselves too prominently, and halloo and whistle, which in their anxiety to turn them is frequently done. When a beater has made certain that the deer have once seen him, he should occasionally stoop and conceal himself. When deer have once seen a man and lost sight of him they become suspicious, and will not trust themselves to remain in such circumstances, but generally scamper off in the opposite direction. By a beater partially concealing himself as if in the act of stalking, deer are more frightened than when showing himself at full length. When deer are stiff to drive, it is desirable not to press them too hard, as, by manœuvring as above described, they will go much better than by pressing them, and are not so liable to break through among the beaters. When beaters are near at hand deer seem to be able to calculate the distance, and how long it will take to clear a given space of ground; and if they once bolt back, it is almost impossible to stop them, more especially if they have discovered danger ahead. When a herd is being driven the sportsmen in the "pass" must be mute and motionless, and

take care to be on the lee side of the "pass." They must at the same time keep a sharp look-out, as the deer approach so noiselessly that they will be close upon the rifles in ambush before there is the slightest indication of their presence. If seated under the shadow of a rock, or where a commanding view of the approach of the herd is secured, the sportsman can "dictate his own terms" by marking out the heavy stags as they advance; but if in a position where the herd cannot be seen approaching, care should be taken not to shoot at the first to appear, for, as already observed, the heaviest stags generally bring up the rear. Another important consideration to be kept in view is, that when shots are fired at the first deer that approach, those in the rear frequently turn back, and either break through among the drivers or by a wide circuit effect their escape. If, on the other hand, a number of the deer are allowed to pass, there is a disposition on the part of others to press forward. If the "pass" is a wide one, gentlemen should, before the deer come up, note any stone or other object at different places, with the view of ascertaining the distance, and keep this in mind when the deer are passing.

Where circumstances admit of it, each sportsman should survey the ground with his glass and scan the largest and best stags, so that he may know them when they enter the "pass." If not too large a herd, it is advisable to count them ere they approach, so that he may judge when it is expedient to fire. In using a glass under such circumstances, care must be taken that the glare of the sun be not allowed to play upon the glass in the telescope, otherwise the flash may attract the attention of the deer as they approach, and thus cause them to strike off in an adverse direction. Another advantage from ascertaining the number is, that in the event of one or more being wounded, and thereafter being out of sight for a time, the sportsman, on the herd again coming into sight, will be able, by the application of his glass, to make sure of the number, and thus ascertain whether any have fallen out of the herd. If so, he will have little difficulty in overtaking the stricken one; but if the entire number keep together for a considerable distance, he may, with some degree of certainty, conclude that no result likely to prove fatal will ensue. In this, however, it is possible to be mistaken, as it is no unusual thing for deer to have been struck and run a considerable distance. Hence it is of the utmost importance that the aim should be directed towards a vital part.

one-year-old, and a calf, and in rare instances the two latter have been seen one at each side sucking the dam at the same time. In such cases the family compact is maintained, and the society of other deer generally shunned. If the two-year-old is a stag, it has by this time arrived at a state of sexual maturity; and facilities are thus afforded for close breeding, which every experienced stalker knows must sooner or later manifest itself in the deterioration of the species. When cases of this kind are discovered the old hind should attract the aim of the stalker, and thus cross-breeding would be encouraged. From the large number of hinds as compared with stags, it is the opinion of many that more females are calved than males. This, however, does not comport with my experience, nor with that of some of the most observant and experienced foresters. The late Mr Campbell, head stalker in Strathconan Forest, and whose authority I accept as second to none, said that for many years he killed each season from fifty to a hundred hinds, and after careful examination he found that adult hinds were almost without exception pregnant. In no case did he ever find twins in the womb, while he found males and females in about equal proportions. From the number of barren hinds, it will be seen that a great mortality must necessarily take place among the fawns, or that they must be destroyed by birds and beasts of prey. No doubt after severe winters—the hinds being greatly reduced in condition—many of them drop their calves prematurely, which in some degree accounts for the large number of “yeld” hinds.

Here a day's hind-shooting may be worth recalling, more because of its showing the contingencies that arise between the sighting and shooting of hinds than for any value which may attach to it as a description of a day's sport among the mountains amid storm and snow.

Rising early and having breakfast before it was light, in company of the stalker, I started shortly after daybreak. The weather had fairly broken; and as we proceeded up the glen we had to face a bewildering storm of sleet and snow which caused us to walk half-doubled, with our heads down, in order to protect our eyes from being blinded. An hour and a half's walk brought us to the top of the glen, when, by a circuitous path, here and there hidden by snow-wreaths, we ascended to the top of the hill. On reaching the summit the wind increased in violence, driving the snow before it with im-

petuous force. To use the glass was impossible, but we were fortunate enough without it to discover something dark on the face of a hill—the opposite side of a small glen—and that something turned out to be deer. Keeping to the right to avoid giving them our wind, we without much difficulty got round above them. By a slow and laborious crawl—during which the wet snow got down our necks and up our coat-sleeves, and soaked us to the skin—we arrived within a hundred yards of the nearest, a hind and calf. To get nearer was impossible; and observing a large yellow or golden-coloured one about thirty yards farther off, we selected her for our aim. There were about thirty of them altogether, including hinds, calves, and a few small stags. Aware of the danger of crawling among snow with the rifle exposed, we kept it in the cover till the critical moment; and while in the act of uncovering it, the hind with the calf referred to evidently apprehended danger, and kept staring in our direction in a most suspicious manner. Those of the herd which were lying instantly jumped to their feet, shaking off the snow melted by the heat of their bodies, and causing it to fly from both sides of their mane in showers of spray. The rifle uncovered, no time was lost in bringing it to bear upon the object of our selection. Several times I was on the point of firing, when a flake of snow would strike me on the eye or fall on the sight of the rifle, causing no little annoyance. Pressing the trigger at last, the rifle “snapped”—a most unusual occurrence—and a “bark” from the nearest hind, which had made sure we were an enemy, caused the entire herd to scamper off.

After a couple more stalks, which proved unsuccessful, we saw about a dozen hinds lying in a most favourable place. As it was next to impossible to shoot in the face of such a hurricane, we “shaved” the wind, having the deer almost to leeward of us. To have gone a yard or two farther to the left, they must have winded us. Crawling forward and looking over a bit of rock, we beheld them lying in peaceful security at about eighty yards’ distance. Placing the telescope on the rock to make the lean for the rifle the proper height, I gave a whistle, with the view of causing the deer to rise. A very large one was the first on her feet, and taking a steady aim at her heart, I pressed the trigger. Unfortunately, at that moment a small three-year-old was in the act of rising between the rifle and the hind aimed at, when, intercepting the bullet with

its head, it was, of course, killed on the spot. As the herd galloped off in straight line from where we stood, and as they never stopped to look round till several hundred yards off, I did not fire a second shot. As it was impossible to get a pony to the place in consequence of the snowstorm, there was no other alternative but to shoulder part of the venison and carry it home. It was a fine young hind in good condition, although not so fat as a full-grown one. After "galloping" and cutting the carcase through the middle, we started homeward carrying the haunches, and by the time the lodge was reached—three miles distant—they constituted a sufficiently heavy burden.

The season of the year at which hind-shooting must necessarily be prosecuted renders it not only most arduous, but it is also frequently attended with danger. It is not an unusual thing for sportsmen, while engaged in grouse-shooting, to lose their way among those volumes of mist which settle down among the mountains, dense and wellnigh impenetrable to the human eye. During the long days of August and September, when the weather is genial, no serious danger is to be apprehended. It is, however, very different when out hind-shooting to become enveloped in one of those impenetrable fogs, with a heavy fall of snow, while the piercing north-east winds, charged with frost, threaten to congeal the blood when active exercise becomes no longer possible. Such were the circumstances by which we were overtaken in connection with a hind-hunting expedition. Having accepted an invitation for a couple of days' hind-stalking on the southern shoulder of the Grampians, in company with an ardent sportsman we left Edinburgh shortly before Christmas, with the weather all that could possibly be desired. The temperature was mild in the extreme, while the sun had shone out for several days brilliant as at midsummer. We spent the night at Pitlochry, and with a carriage and pair posted northward by the light of the moon some hours before daybreak. After encountering several partial blocks of snow upon the road, we reached our destination early in the forenoon. Without loss of time we directed our steps towards the forest, where we found the snow lying to the depth of twelve or fifteen inches, and in some of the gullies there were wreaths twenty feet deep. There was no scarcity of deer; but, strange to say, they were all stags, the hinds evidently having left the ground and gone

elsewhere. After a day spent in fruitless exertion, we reached the hotel at the Spittal of Glenshee, where we were most comfortably and hospitably entertained. Before leaving Edinburgh we had met the tenant of Fealar Forest, who informed us that his keepers were killing hinds. Smarting somewhat under the disappointment which we had encountered on the previous day, we resolved to visit Fealar. On breakfasting at the hotel, the morning being clear and enjoyable, we started up the beautiful glen by the side of the river which finds its rise in Loch-na-nein, on the summit or watershed. Before gaining the outlet from the loch, we had to force our way through several hundred yards of drifted snow, which filled the top of the valley from bank to bank. This was no easy task, laden as we were with rifles, ulsters, and the necessary change of clothing. The ascent was wellnigh perpendicular for a time. As long as the crust of snow carried our weight we were able to get along moderately well, but as it ever and again gave way we frequently found ourselves up to the armpits, and on more than one occasion were wellnigh out of sight. Wearied and utterly exhausted, we reached Loch-na-nein, which but for the outflow amongst the rugged ice we could not have recognised, it being entirely frozen over and covered with a thick coating of snow. Having many years before, while grouse-shooting in the North, heard that there was a most comfortable bothy on the shore of the loch, we hopefully anticipated finding a temporary resting-place—all the more to be desired because of an impenetrable fog having settled down upon the whole scene. To our dismay and irrepressible disgust we in our search came upon the small sheiling, with its door and window destroyed, the roof fallen in, and the interior full of drifted snow. In our extremity we proceeded in quest of Glenmore Burn, which, from the map, we believed might lead us to the discovery of Fealar Lodge. Ordinary prudence would have led us to retrace our steps, and, by following our footprints, enabled us to find our way back to the Spittal of Glenshee. With that indomitable and—the reader may be disposed to think—foolhardy persistency characteristic of sportsmen, we preferred to push forward. Turning to the left, we got into a flat of broken marshy ground, and naturally concluded that Glenmore Burn must here find its rise. For hours we continued, as we thought, to push forward amid ever-increasing difficulties, until the snow and mist became

altogether bewildering. We must, however, have walked in a very roundabout way, as is frequently done in mist. Wellnigh exhausted, and noting unmistakable indications of darkness being about to set in, we took the rifle-stocks from their cover, and, as the last desperate expedient, were about to dig a hole or hut in the embankment of a great snow-wreath, in the faint hope that we might thus be able to spend the night. Feeling an intense weariness stealing over us, and knowing the danger of those who fall asleep in such circumstances never again awaking, we resolved on one final effort ere we became enshrouded in the cloud of night. We had not proceeded far until the pleasing music of Glenmore Burn fell upon our ears, towards which we approached. Following its course down the glen, we came to a place usually forded by any solitary pedestrian in that wild solitude. Here we discovered the fresh footprints of a man upon the snow, when we realised something of that inspiration which filled the mind of Mungo Park when his eye fell upon the tiny little moss in the African desert. What, then, was to be done? Darkness was rapidly setting in, and neither the time nor the circumstances would admit of indecision, or even hesitancy. To follow the footprints towards the low country we were sufficiently informed to know would be a hopeless enterprise, as there could be no habitation within a distance of many miles. The only other alternative left us was to trace the human track backward, in the hope that it might lead us to Fealar Lodge, which we knew to be the only habitation within a circuit of many miles in this wild and mountainous region. Physically exhausted and dispirited, we—not without the greatest difficulty—were able to follow the track over three miles of moorland, when hope, the last refuge of perplexed and baffled humanity, had wellnigh deserted us. Here in the darkness we were able to discern what appeared to be the footprints of several men, but which upon close inspection we found to be those of a cow. The substantial relief realised by this incident would require a pen more gifted than mine to describe. Pressing forward a very few yards, we discovered ourselves on the bank of another mountain rivulet. On looking across we saw a light, which, on approaching, we found to be that of the object of our search—Fealar Lodge. We now learned that the footprints were those of the forester, who had left in the morning for the low country—a

distance of sixteen miles—in order to obtain his letters, all communication having been cut off for several weeks. We, however, received a hearty welcome from Mrs Macdonald, who, at once recognising the plight that we were in, supplied us with the means of ablution and warm underclothing, and in a short time had us comfortably seated at her hospitable board.

I have enjoyed many meals during a somewhat busy life in agricultural pursuits and field-sports, but on no occasion did I ever relish a repast as I did that one, of venison-soup and its accompaniments. From this incident we have an illustration of the folly of some sportsmen, and of the danger which attends hind-shooting among snow in regions unknown to the persons concerned.

There is no disputing the fact that, by the attention which has of late years been directed to the land question in this country, deer-forests have come in for a full share of adverse criticism. While there are few among either sportsmen or politicians who would desire, much less defend, the carrying out of a policy which would devote ground capable of agriculture to the feeding of deer, it must not be forgotten that there are immense tracts of territory in the mountain wilds of Scotland which are more adapted for deer-forests than aught else. Their high elevation above the sea-level, their utter inaccessibility, and the large preponderance of rock, render them unfit even for grazing purposes. I do not wish to be understood as affirming that there are not tracts of country occupied by deer which might be devoted to the feeding of sheep. It is a notable fact, however, that deer-forests are confined exclusively to the Highlands of Scotland.

The two most southern counties in Scotland where red-deer are to be found are those of Perth and Argyll. The acreage of these two counties amounts to 3,774,208. If we include the counties of Aberdeen, Banff, Bute, Caithness, Forfar, Inverness, Ross, and Sutherland, the aggregate acreage of these ten counties amounts to 12,391,115. Of this extent 2,006,926 acres, or nearly one-sixth of the whole, are devoted to deer-forests. It is proper to state, however, that in certain of these forests there are still a number of sheep and black cattle. The aggregate rental of these forests amounts to upwards of £143,000, while nearly £100,000 of this sum is derived from shootings and fishings, with the corresponding accessories of mansions and lodges. The number of deer shot annually in these forests amounts to nearly 10,000. In addition to

this large number, a few escape wounded, to pine and die in the forest, and are devoured by ravens and other birds and beasts of prey. Of the above 10,000, about one-half are stags shot prior to the middle of October, while the remainder are hinds, the most of which are shot towards the close of the year. The greater proportion of these hinds are distributed among the crofters and retainers throughout our Highland glens, and contribute largely to their sustenance during the winter. I do not, of course, deny that there are some sportsmen who send their venison to market; but in so far as my experience goes, they are extremely few. I also know one or two forests where the venison is sent to the nearest village and sold to those resident in the district at a nominal price. This arrangement I think a wise one, and to be encouraged, as it brings this most delicious food within the reach of many to whom it would not otherwise be attainable.

Norway has long been talked of in sporting circles as a country where the sportsman and the tourist could revel among the grandeur of natural scenery, and enjoy to the full the highest kind of sport. Like most readers, I was puzzled by the conflicting testimony of presumably well-informed parties, and I resolved to make a sporting tour amid the magnificent scenery which abounds, and ascertain for myself the nature and extent of the sport available in that country.

Inspired by this resolution, I sailed from Leith in a tourist steamer, and in due course got into smooth water and sailed up the Hardangerfjord, an ever-varying panorama of mountain and lake scenery. Keeping on board for a time, I sailed round a number of fjords on the beaten track of tourists, and intended proceeding to the North Cape with the view of seeing the land of the midnight sun. Unfortunately I had a nasty fall on board, by which I received a severe contusion and rupture of the muscle fibre on my right shoulder. It was so painful that on arriving at Molde I found it necessary to disembark and obtain medical advice. This was to the effect that not only was prompt and careful treatment necessary, but that in no case should I attempt to use either rod or gun for a month. This intimation during the first week of September would have been bad under any circumstances, but more especially in view of my anticipations of sport in Norway.

During my sojourn at Molde news came in to the village that sixteen sheep had been killed by a bear which, with two cubs, had been seen a few miles distant. A party went off in pursuit, but, for the above only

too good reason, I was unable to join it. Bruin, however, was too wide-awake, and had evidently left the district.

My disappointment at not being able to use the rifle was the more keenly felt, as I was about to proceed to the island of Hittern, where I anticipated good sport in the way of stalking. I had previously learnt it was no uncommon thing to kill deer there over twenty-five stones, and I confidently calculated upon killing a few of the largest deer that it had ever been my good fortune to shoot. After a week's sojourn in Molde, walking about with my arm in a sling, I was able to carry out my intentions, and set sail for the island in question. Reaching Havn after dark, the captain signalled to the people on shore, and two girls rowed out in a boat and took me from the steamer. After an excellent supper, consisting chiefly of fish and venison steak, accompanied by such coffee ✓ as only Norwegians can make, I retired for the night. Rising early the following morning, I observed that the meadows were protected by a high rustic fence, evidently put up to prevent the incursions of deer. I saw the prints of deer near the house, and concluded that such a fence was absolutely necessary. After breakfast I hired a cariole and drove across the island, a distance of twenty-one miles, which took seven hours, the road reminding me of a switchback railway. On reaching Hopso the first thing that met my gaze was the splendid head of a stag which had been shot the day previous by a native farmer. On the following morning, having intimated to my host the object of my visit, he despatched a messenger some miles for a hunter to accompany me as a guide among the mountains. I was agreeably disappointed to find, after certain representations of an adverse kind, that the ground was by no means difficult to travel, the highest mountain being only 1000 feet above sea-level. The wind being unfavourable, we had to walk seven miles on the road with the view of getting to leeward of the ground we proposed to stalk. It was thus well on in the afternoon before we entered on the moor. Though shooting was out of the question, I asked Gabriel, the hunter, to carry my rifle, as I thought it possible that with a lean I might get a shot off my left shoulder. After walking about an hour and a half we descried deer within a short distance. Getting my telescope drawn out for me, I leaned it over a rock and saw a splendid stag lying about four or five hundred yards off, the "cups" on the tops of his antlers indicating a "royal." The nature of the ground being of a favourable character, we had no difficulty in getting behind a small rock within a

hundred and fifty yards of this splendid animal. Gabriel loaded the rifle for me and signalled me to shoot. I shook my head, and by signs indicated that I would wait till the stag rose and began to feed. He took in the situation, whispering "Ja, ja," and nodding assent. In a short time the stag was on its feet, and evidently having discovered danger, made off. Presuming that he would not proceed far before he made a stand, I with my left hand placed the rifle on a rock and waited the result. As I anticipated, he stopped and looked anxiously back, when I tried to use the rifle by shooting from the left shoulder; but, as was to be expected, missed what in ordinary circumstances would have been a dead shot. Annoyed and dispirited we wended our way homewards, but the sight of such an exceptionally large stag had so stimulated my sporting aspirations that I started with Gabriel the following morning at daybreak. As I could not use the telescope with one arm, I left matters entirely in his hands, and as we were unable to converse with each other, I walked behind in silence. In due course we sighted deer, and after a deal of manœuvring crawled to a moss-covered rock within a hundred yards of a stag which was feeding on a patch of green. Gabriel loaded the rifle, laid it on the rock, and I prepared to shoot. Keeping the points of the antlers in view, I looked through the sights of the rifle, but felt so awkward with my left hand that I foolishly resolved to try the right. I therefore got Gabriel to remove the sling, but found I had to use the left hand to bring the right one to the trigger guard, which caused great pain. This accomplished, I raised myself a little higher and saw the stag quietly feeding, unconscious of our presence, so drawing a bead upon his heart, I pressed the trigger. I was then called upon to pay the penalty for my indiscretion in disregarding medical instructions, and acting contrary to my own convictions of right. The recoil of the .500 express was too much for my injured shoulder, and I almost fainted. The shot took fatal effect, and being temporarily bewildered, on looking up I saw Gabriel forward and preparing himself to gralloch the stag. He was a large animal, but did not quite scale twenty stones. Shortly thereafter we proceeded home, which we reached in time for a late breakfast, and for once in my life I felt that I had had enough of deer-stalking. Spending several more days on the island, which we crossed among the mountains, we saw numbers of deer, but, as may be expected, the rifle was in the case. Had I been able to use it, I could have had some rare stalking and secured some good stags.

It must not be supposed that the sport on the island of Hittern is confined to mere deer-stalking. Notwithstanding the large number of birds of prey which work sad havoc among winged game, there is still very fair sport to be had among ryper, a bird resembling in very many respects our red grouse. Those birds have also the peculiarity of the ptarmigan, inasmuch as the plumage becomes white during the winter months. But for this wise provision in nature, the number killed by the hawk tribe would be much greater than it is at present. In the course of our incursions inland in quest of deer, we flushed numerous coveys of these beautiful birds, the number of each covey averaging from eight to ten. On one occasion, in a choice spot of mixed scrub birch, bog-myrtle, and heather, we flushed no fewer than three coveys almost all at once. At the same time we travelled over very considerable stretches without raising a bird; but when it is considered that ryper sit much closer than grouse, and that we were unaccompanied by dogs, the numbers which we saw must not be accepted as indicating the stock upon the ground we traversed. In addition to ryper we also found black-game in considerable numbers, wild duck numerous, while snipe were occasionally met with.

Leaving Hittern, I had a pleasant sail up the fjord to Trondhjem, which is so far north that it is on a line with the south coast of Iceland.

Travelling by rail to Koppang, I visited Messelt, in the centre of Norway, where I was the guest of a large proprietor, who kindly offered me reindeer- and elk-shooting. We rode ponies many miles up into the mountains, and spent a few days in a sæter, in the hope of getting a shot at reindeer. In consequence, however, of the mildness of the weather, and the migratory habits of the deer referred to, we failed in getting a shot, and left the sæter, turning our attention to elk-shooting for the time being.

To the lover of the canine race nothing can be more interesting than following a well-trained elk-hound and watching the skill and sagacity displayed, as it sometimes for many hours follows the tracks of the object of its pursuit. Accompanied by an excellent Norwegian sportsman, with his two dogs, "Nor" and "Bjune," we started at five o'clock in the morning, and shortly thereafter were, as I supposed, lost in the labyrinths of a large pine-wood. Carrying a pocket-compass, I took bearings before starting, but this, I was informed, was unnecessary, as

Helge, the keeper, who had spent his life in the district, was thoroughly conversant with the geography of the wood. For several hours we proceeded, the walking being most difficult, in consequence of the uneven character of the ground, and large trees with upturned roots frequently obstructing our passage. But for coming across tracks of elk, our walk was becoming tiresome and monotonous, though none of these were fresh enough for the dogs to take up the scent. At last "Nor" put down his nose, pulled in his harness, and whining in an excited manner, gave unmistakable signs that he had discovered a fresh spoor. The character of the ground at the place, which was rock and dry moss, prevented our seeing the footprints—the only means by which we could form an idea of the size of the animal. I had already indicated that I would not shoot a cow or a small bull, but only a large-sized one, and consequently it was most desirable that we should see the track as soon as possible. We were at a considerable altitude, and the ground unfavourable for seeing footprints, so that we had no alternative but to follow the dog, which was pulling in his harness like a steam-engine. "Bjune" was kept "to heel" till we determined that the tracks were those of a bull. Coming to a bit of marshy ground, we were chagrined to discover that the spoor was that of a cow, the round shape with the hoofs close together differing from those of a bull by the hoofs usually being a little separate. This was disappointing; but we were fortunate soon after in finding the tracks of a bull, the dimensions of the hoof-prints indicating an exceptionally large animal. Now we were all excitement, as "Nor" took up the scent, and pulled the keeper onward at a rapid pace. Before finding the track I was beginning to feel tired, but this feeling was soon forgotten in my eagerness to press onward. Sometimes the spoor was uphill, downhill, across rocky boulders, or over fallen trees, all of which rendered walking most difficult. It would be impossible to determine the pace at which we proceeded, but of one thing I have no doubt, that it was as fast as we were able. Though the thick wood protected us from the blazing sun overhead, there was not a breath of air, so, panting with fatigue and wet with perspiration, we struggled onwards. We were now going downhill, and the roar of a foss indicated that we were near a river. Here the Elden is of considerable size, and as the tracks led forward to it, there was nothing for us but to plunge in. Helge crossed first with "Nor," I following; and though the water was about three feet deep and very rapid, we got safely across. The dog at once

took up the tracks again, and we pushed on as before. "Bjune" was let loose and sent on, but returned in about ten minutes, indicating that the elk was far ahead. After crossing the river the spoor led us uphill, which took the breath out of us, and as we had breakfasted at 4.30, I felt very hungry and much fatigued. Coming to a streamlet, we halted, secured "Nor" to a tree, and the keeper in a few minutes kindled a fire. Unpacking his knapsack, I was surprised to see him turn out a small brass tea-kettle, which, after emptying of its varied contents, he filled with water and put on the fire to boil. In a Norwegian forest there is always an abundance of decayed wood admirably adapted for fuel, and in a short time tea was made, which we enjoyed to the full. After a refreshing lunch, not forgetting the dogs, we started with renewed vigour and followed on the trail. How long, I wondered, was it going to last? Surely even an elk must get tired and halt to rest, so that we might be able to get near him. Still there were no indications of his having eaten anything or lain down, and for several more hours we followed on, "Nor" sticking to the trail with amazing accuracy. As the sun had disappeared and the shadows of the mountains were creeping over the landscape, we abandoned the chase, and wended our way homeward, which we reached at eight o'clock, after fifteen hours as hard walking as I ever indulged in. Daylight was breaking the next morning when a knock at my bedroom door announced that it was time to get up, and stiff and wearied as I was, it required a considerable amount of self-denial on my part to respond to the call. After a hurried breakfast, we crossed the Glommen—the largest river in Norway—and at once got into a wood which, I was informed, was the habitat of elk. For an hour we ascended the mountain, frequently seeing old tracks, and so wearied was I with the toils of the previous day that I felt walking uphill most difficult. Very soon, however, I forgot all about being tired, as "Nor" suddenly wheeled at right angles, put down his nose, and pulled in his harness, the result of crossing a fresh spoor. I need not again describe the hunt, further than to say that we observed the elk had been feeding from side to side, tearing off the leaves of birch and mountain-ash as he had passed, and that in a short time we came to the bed where he had lain down for the day, and where no doubt we had aroused him in his slumbers. The spoor indicated a large bull, and as he had crossed some wet ground, we saw that the water was still muddy in his tracks. Knowing, therefore, he could not be many minutes in

advance, we slipped "Bjune," who went off in pursuit at a rapid pace. As we were going up-wind, "Nor," now with his head in the air, pulled the keeper on, as if impelled by some irresistible instinct. Following on for half an hour, we heard in the distance the pleasing music of "Bjune," and knew that at last the elk was at bay. Loading my rifle, and guided by the sound, we ran on as fast as we were able. When within a few hundred yards the elk broke bay and made off, though, judging by the barking of the dog, only at a walk. By this time we were going up an incline, and, panting with fatigue, we hurried on as hard as our limbs and lungs would allow. Fortunately the chase continued little over a mile, when we knew by the altered bark of the dog that he again had the elk at bay. Getting near, great caution was necessary, as if the elk got sight of us, or heard the snap of a stick beneath our feet, he would again break, and possibly add miles to the chase. Observing that "Bjune" barked for about twenty seconds, then stopped to take a breath and began again, we took advantage of his noise, and stealthily approached. Anticipating his becoming quiet, we stood motionless till the noise again began, and in this manner got within about a hundred yards of the object of our pursuit. Peering through the trees, for the first time in my life I got my eyes on a living elk in his native solitude. What a monster! He reminded me of Jumbo, and I could not but admire him. "Shoot, shoot!" whispered my companion, and I silently cocked the rifle. With heaving chest, occasioned by the long run, I put the rifle to my shoulder and tried to take an aim. The dog was right between the elk and me, and I could not get a shot except at his head, which I specially wished to avoid striking, as already I anticipated showing it with pride to my friends as an ornament in my lobby! I could not help observing how difficult he was to see, so closely has nature assimilated the colour of his skin to his natural surroundings, the trunks of the trees. Turning his head to the side to keep off the dog, which was barking round in front of him, he exposed his neck and shoulder, and I took aim. To hold steady after such a run was impossible, but I brought the rifle slowly up, and when passing the broadest part of his neck, pressed the trigger. I could not tell the result, and ran to the spot as fast as I was able, but no elk was to be seen. Surely I could not have missed such a mark. Impossible! Still, a fear crept over me that, after such a terrible run, and perhaps a slight attack of elk fever, it was possible. I hardly knew what to think, when the barking of "Bjune" a few hundred yards off

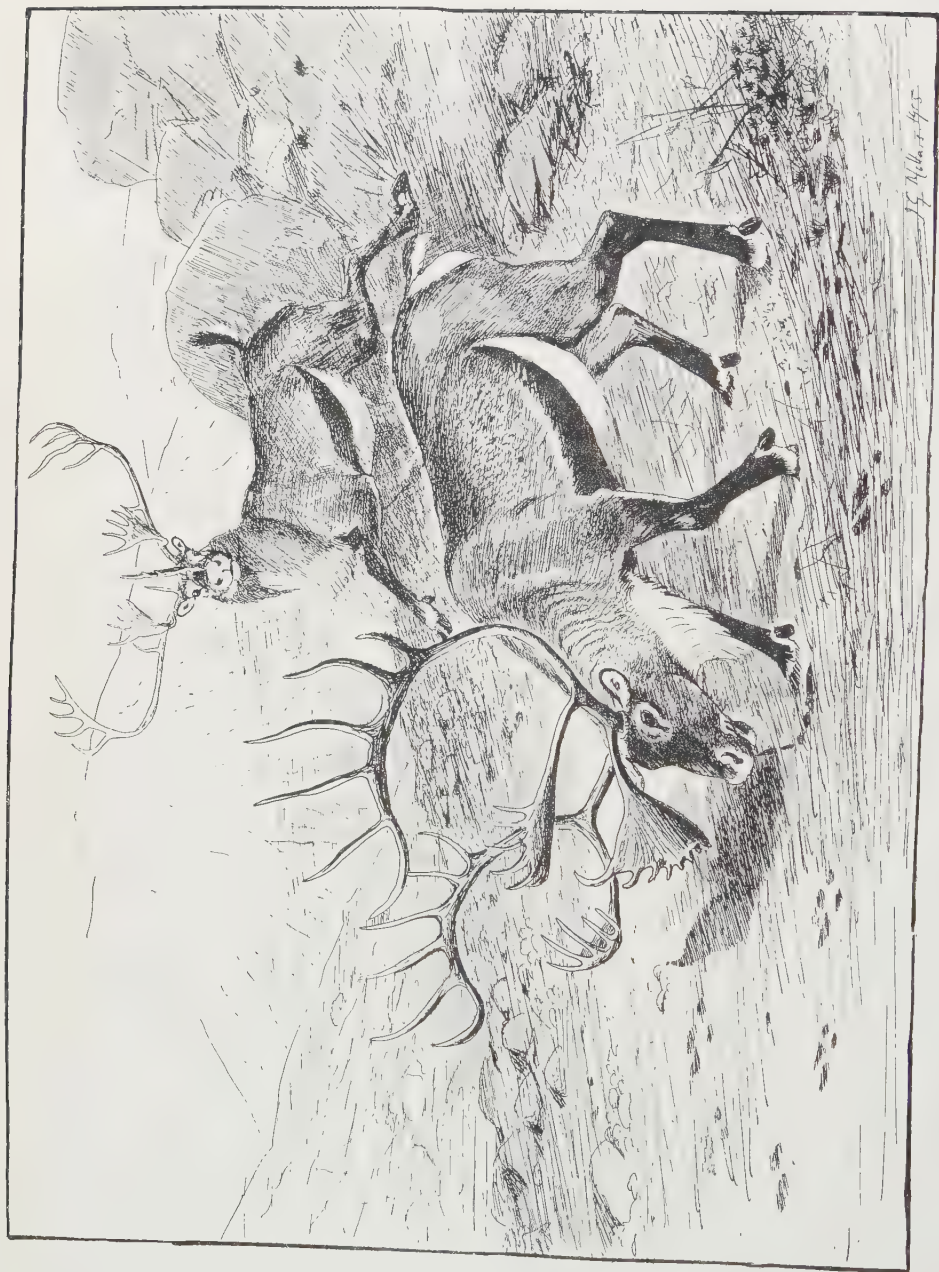


Elk breaking bay.

made it clear that the elk was again at bay. "He is all right," shouted my companion behind me, and again I hastened to the scene of action. Having reloaded the empty barrel, I ran on with the rifle at full cock, but did not get sight of the elk till within forty yards of him, when I observed he was on his knees. Directly he saw me he got on his feet, and was making off, but as he was broadside on I sent a bullet through his heart, and he dropped dead. Running forward utterly exhausted, I threw myself on the body of my victim till I regained breath. Helge soon came up with "Nor," and we lost no time in returning home, in order that men, ponies, and a sleigh might be sent to bring back the trophy. It was dusk before the men arrived with the elk, when it was found that it weighed about 900 lb. Getting the head and skin, I sent them to a stuffer in Christiania to be preserved.

A snowstorm on the mountains seemed likely to bring reindeer lower down, and I started the following morning with two hunters for a mountain sæter some ten or twelve miles distant—the surrounding mountains being the well-known haunts of reindeer. After leaving the road, we clambered up a mountain-steep, in order to reach the sæter on the fjeld above. No time was lost in getting unpacked, and with my rifle and telescope I took a walk, in the hope of being able to see some deer. In this I was disappointed, but saw numerous fresh tracks, and anticipated good sport the following day. Returning to the sæter, my companions, Ole and Sjur, had supper ready, of which we partook and prepared to go to bed. Small preparations, however, were necessary, as, after divesting myself of my boots only, I turned in. There were no down-quilts here, my only covering being my waterproof and rug, and my bed some dried grass and birch leaves. I could have put up with that, but my bed, which was a wooden one, was only five feet long, and as I stand six feet in my stockings, I was by no means comfortable. To make matters worse, I had not been long in bed when I made the discovery that I had companions; and I strongly recommend any who propose visiting Norway, and have any chance of sleeping in a mountain sæter, to take with them a packet of Keating's insect-destroying powder. As a naturalist interested in the study of insect life, I may say that I have no animosity or unkindly feeling towards these creatures; but on this occasion, at least, I did most solemnly protest against the means by which they obtained their supper. Starting as soon as we could see, in the hope of discovering deer, we wandered over rocky mountains and

patches of eternal snow, but returned to the sæter at dusk without having spied one. The second and third days passed with similar results, and our provisions ran done. Having seen large numbers of fresh tracks, I was very unwilling to leave without getting a shot, and we arranged to take a last look the following morning before returning to the village. A pound tin of salt beef and some tea was all we had for supper, after travelling a long day on the mountains; so I opened the tin and divided it equally into three, and for hungry men it was a scanty enough repast. It must not be supposed that we had bread along with it, as we had none—not even milk or sugar in the tea. Starting breakfastless the following morning, we again saw numerous fresh tracks; and, full of anticipation, we pushed forward. For long weary hours we travelled over rock, snow, and barren wastes, till that terrible hunger-craving warned me in unmistakable language to retrace my steps towards the sæter, and thence back to the village. Still we persevered till after midday, and were circling round the summit of a rocky mountain to make straight for the sæter, when, far down below us, I got my eyes on some moving objects, which, on applying the telescope, I discovered to be deer. Fried liver and venison steak were uppermost in my mind, and no time was lost in stalking them. The wind was by no means steady, but we managed to get within two hundred yards, when I perceived that they became uneasy, some of them getting up and looking suspiciously around. The remainder were quickly on their feet, sniffing in all directions, evidently suspicious of the presence of enemies. They seemed unable to discover in what direction the danger lay, but they made off, and I prepared to shoot. Picking out the largest I could see, I brought the rifle to my shoulder and quickly fired. Not having the proper use of my right arm, I unintentionally let both barrels off at once, but the stag kept on. The killing of a deer was, under the circumstances, a work of necessity, as I was now feeling weak with hunger; so, opening the breech of the rifle, I quickly reloaded, and on looking up saw two large stags, which, hitherto unperceived, had risen from behind a knoll, and were galloping past me broadside-on at a distance of eighty or ninety yards. Never in all my previous experience did I get such a chance, and I was fortunate in rolling them both over. With a grateful heart I ran up, admiring the dimensions of the antlered heads. My two companions, also running forward, exclaimed, “Stor hocks!” or big bucks. In a trice one of them



"A Right and Left" at Reindeer.

Fig. 146. + 147.

got out his knife and thrust it into the chest of one of the stags; and the other, taking from his knapsack a metal cup, caught the blood as it gurgled out, and drank it off. Both of them drank several cupfuls; but I must confess that I felt a sort of sickening sensation, and, hungry as I was, could not brook the idea of tasting warm blood.

Turning away, I got my eyes on the retreating herd of deer, now far up the mountain-side, and one a long way behind the others, hardly able to crawl. Starting in pursuit, I was not long in getting sufficiently near, and despatched him with another shot. We soon skinned and cut them to pieces; and after tying bits of paper with string to the antlers, which flutter in the breeze and prevent birds and beasts of prey from approaching, we hurried to the sæter with a lump of venison. The stove was quickly lighted; the flesh, which was never allowed time to get cold, was put into the pot; and long before it was even underdone we had it out and commenced supper. We had no tablecloth, no knives and forks, no bread, no potatoes, no salt. Carrying a bit on a pointed stick outside, in order that it might cool quickly, and seasoned by a splendid appetite, I made a hearty though unceremonious supper. Leaving my companions to bring home the deer, I walked back to the village in the morning, when I was glad to get a wash and change of linen. The hunters turned up in the evening in two stolkjærres, and after getting the heads and skins, I made them a present of the venison, of which they seemed immensely proud.

CHAPTER VIII.

PARTRIDGE-SHOOTING.

THERE are some incidents in the life-history of the partridge interesting to naturalists. It is the most social of our game-birds, though the pairing season, about the end of January or beginning of February, incline them to mate. In different altitudes or late seasons the time may vary by a week or two, but I have repeatedly noticed in Mid-Lothian that many birds are paired prior to the expiry of the legal time for shooting them. The pairing of these birds possesses an interest for naturalists or any one who cares for country life. They pair at least a week before the covey finally breaks up. It is most interesting to watch the young lovers at this time, as they keep close together, generally a short distance from the remainder of the covey, the cock proffering every nice titbit to his partner with the greatest kindness. A pleasant feature of the pairing of partridges, says the Rev. H. A. Macpherson, "is the constant devotion of bird to bird. Their loves are real enough, and they become constant and inseparable companions for the season, unless some misfortune occurs to one of the pair." Beyond all doubt their loves are genuine, as they manifest the most affectionate attachment to each other. Though partridges are sometimes wanted for the larder at the close of the season, personally I dislike shooting them after they are paired. In the event of any alteration in the game laws, I would suggest that partridge-shooting should close about the middle of January. Should a wintry storm set in after being paired, the covey again unites and jug together, but each pair keep faithful to conjugal law.

Beauvais, the Frenchman, who experimented with partridges, discovered that mutual attachment must exist else the birds will not pair, and that matchmaking is disregarded. Fights frequently

take place between cock birds at pairing time, but it by no means follows that the victor is the choice of the hen, as I have frequently seen her fly off with the vanquished.

Early in May, partridges begin to look out for nesting places, and in some cases are most fastidious in selecting one. When one is fixed on, they make a scrape in the ground and then line it with withered grass or other suitable material. Soon after the hen commences to lay. A close observer will notice that she has provided herself with a superfluous quantity of withered grass, or whatever it may be, to harmonise with the surroundings. With this she covers her eggs, and when she returns to deposit another, it is removed and carefully put back before she leaves. It is strange that after she commences to sit and goes off to feed, like some other birds that cover their eggs at first, she leaves hers exposed. By that time, however, vegetation has sprung up, and eggs are less likely to be noticed by predatory birds. The cock invariably joins her when off feeding, and, like youthful lovers, they seem to be happy in the enjoyment of each other's company.

Though it can hardly be regarded as an enemy to game, the mole, where numerous, destroys many partridge eggs. Keepers of experience will have noticed that frequently moles have a subterranean tunnel just under a hedge. A partridge, when making its scrape, in many cases works through the roof of the mole run, and the consequence is that when the bird is laying its clutch some of the eggs get into the run. When a mole comes along and clears the obstruction more eggs drop into it. The remedy is a simple one. When a nest is discovered the hedgerow should be probed on each side of it with a stick, and if a mole-run be found, pour in a little paraffin or tar and stop up the hole. Moles, being very sensitive to smell, will not burrow through.

At a cottage where I resided in Berwickshire, at the side of a public road, there is a garden in front enclosed within a privet hedge. From the cottage to the hedge the garden is fourteen feet in width. Early in May a pair of partridges were observed inside the hedge, and for some time after they were frequently seen at the same place. One day the two birds were noticed squatted among some lily-of-the-valley within four feet of the pathway. It then became apparent they were about to nest, and the interest increased. One of them was seen the following day coming across the road, and appeared to squat amid the profusion of the flower referred to. The other kept the far side of

the road, and from the bright "horse-shoe" on the breast it was concluded to be the cock bird. In a short time the hen crossed the road and joined him, and it was noticed he came with her every day. Thinking she would be laying, the spot was examined, but no eggs were to be seen. Knowing that partridges are in the habit of covering their eggs when they leave the nest, I removed the dead leaves of privet and lily-of-the-valley, when seven eggs were exposed to view. Covering them up again, and watching the hen closely, it was amusing to see her carefully concealing her eggs when she went off and uncovering them on her return. At last her clutch was completed, and she entered upon the process of hatching. As no weeding or hedge-clipping had been done since she was first observed, a profusion of vegetation had sprung up, partly concealing her from view. After incubation had commenced, she, on leaving the nest, gave a slight call or two, when the cock bird answered her and came at once. In every case he convoyed her back, but stopped at the other side of the road. In about three weeks she was noticed fidgiting about, and the cock bird being now beside her, it was evident that hatching had taken place. Soon after the parent birds, with their tiny chicks, crossed the road and disappeared in a field of corn. It was noticed that two chicks had been left behind, but the mother bird soon returned for them and convoyed them across the road, to join the remainder of the brood. There were fifteen eggs in all, and every one hatched. The chicks grew fast, and a week or two after were frequently seen upon the road, lying on their sides and fluffing the dust with their little wings, in order, it is presumed, to get rid of the parasites peculiar to the partridge.

When the young are hatched, what is more interesting than to watch the mother bird feigning lameness to lure the intruder away from her progeny! Well do I remember as a boy being thus deluded, and following the apparently wounded bird till she evidently thought she had beguiled me far enough, when she took wing and, joined by her mate, flew away. The love of the cock bird for the young is, I am convinced, as great as that of the hen. He continually keeps watch over them, even after they are full grown. When busy feeding, he is always most conspicuous, ever on the watch, and the first to give alarm should a hawk or other enemy appear in sight.

Partridges, it is said, "follow the plough." There is no doubt that of late years, in consequence of the difficulty in procuring agricultural

labour, much cultivated land has been laid down in pasture. The result is that partridges, as a rule, leave the district and follow cultivation. No doubt coveys are frequently met with on grass lands, but not in great numbers. At one time a croft or small farm called Dal existed on the Dalnamein shooting. I can remember hunting with a couple of pointers on it one day, when nineteen brace of partridges were bagged. From the fact of it not paying, cultivation has ceased, so that it is now all grazing ground. The consequence is that partridges have practically disappeared.

With the scarcity of food during the world war, from August 1914 till 1918, it was recommended by the Government that as much grass land as possible should be broken up and sown with grain. The result was that much land, including gentlemen's policies, golf-courses, and other recreation grounds were cultivated in the interest of the food supplies of the nation. It is therefore to be hoped that the little brown birds will return to those haunts from where they have been long banished through lack of cultivation.

The bill of fare of partridges is a varied one. Where ants' eggs are available, these constitute their favourite food in their babyhood. They are easily reared by hand if the eggs of these insects are procurable. Almost all insects that creep or fly, fragments of grass and clover, all kinds of wild fruits, grain, and many seeds of obnoxious weeds, are found in their crops. Recently I shot some partridges, and was surprised at the number of seeds with which their crops were distended. I sent a crop to Dr Balfour, the Professor of Botany in Edinburgh, who kindly undertook an examination of it for me. "It contained," he wrote, "2974 seeds of *Polygonum aviculare*; seeds of *Fumaria officinalis*, 642; other seeds, fragments of grass, &c., including seeds of *Atriplex* sp., 11." As these are inimical to agriculture, it is clear that the little brown birds are more the friends than the foes of the farmer.

When contrasted with that of grouse, partridge-shooting is regarded by many sportsmen as rather commonplace. Several reasons contribute to this estimate of the sport. Stubbles and turnip-fields and low ground-cover contrast most unfavourably with the purple heather and romantic scenery so generally associated with the haunts of grouse. There is, further, the more homely character of the partridge, with which the rural population, and even the school children, are familiar.

Notwithstanding these drawbacks, however, during the end of September or in October, when the harvest is gathered in, partridge-shooting constitutes enjoyable sport. I have said "during the end of September or in October," because, as a general rule, the shooting of partridges at an earlier period should be deprecated. During the first weeks of September the young birds are for the most part soft, and only partially fledged, and however plentiful and easily bagged, cannot afford satisfactory shooting to those who know what good sport really is. All practical sportsmen will concur in this observation, and agree in saying that partridges should not be shot until red in the breast, and until the "pecked" appearance on their head and neck has disappeared. It is only when they have reached this stage of maturity that they are strong on the wing, and fly off with that sharp and healthy whirr which makes it difficult to distinguish young from old birds. Eight or ten brace of this description shot in the month of October yield more real sport than ten times the number shot at the commencement of the season, when in rising they more resemble corncrakes than aught else.

It may appear an elementary suggestion, but its importance renders it necessary to be noted, that the first thing to be done in partridge-shooting is to hunt the stubble and lea fields, so that the birds may be driven into the turnips and adjoining coverts. I have known a couple of sportsmen shoot the entire day in one turnip-field by a keeper hunting the surrounding stubbles with dogs, and driving the birds back into the cover. This, of course, occurred where birds were very plentiful; but where they are more limited in numbers, a knowledge of their haunts and habits saves a great deal of walking and hunting. For example, in "rank" turnips, especially when wet, either by rain or the melting moisture of hoar-frost, they are rarely found at the commencement of the season unless driven in; but should a potato-field, with the tops down a bit by frost, or a second crop of grass be in the vicinity, it is a much more favourite resort. Although partridges like sufficient cover to conceal themselves from their enemies, they prefer, as a rule, places where they can "dust" and bask in the sun. As agriculturists crop by different methods in different parts of the country, and as the habits of the birds in closely inhabited places vary from those in more rural districts where seldom disturbed, it is impossible to give a uniform description of their haunts. They will frequently be found in the most unlikely places; and on lands where they are often

disturbed, sportsmen cannot err in searching by the hedgerows, old quarries, or indeed any quiet place screened from observation.

Since the introduction of reaping-machines, partridge-shooting with dogs has in a great measure altered for the worse. The stubble is left so bare that the birds can be seen feeding from a long distance, and are consequently unapproachable. It sometimes happens, however, that in consequence of heavy rains prior to reaping, the crop is dashed and laid, and the old method of cutting with the sickle has to be resorted to. In such circumstances the stubble is left rough, and birds, if undisturbed, not unfrequently remain there all day, and will of course be readily found. When flushed, they generally fly to turnips, potatoes, or the best and nearest cover, such as broom or young plantations; and should they settle somewhat scattered in alighting, they are more easily bagged, especially if the old birds be killed in the first rise. Coveys thus broken yield the best sport; for when deprived of the old birds, the young become bewildered, and fall an easy prey to the sportsman who has the help of a well-trained dog.

It is almost impossible to pick up "runners" in rank turnips without the assistance of a retriever; for although a pointer may "road" them up (and point at them), they often slip off again and escape. With a retriever it is very different, the bird being picked up with all despatch.

There are few things more interesting to sportsmen than to watch the movements of a retriever tracking a winged partridge,—how he will dodge about among the turnip-drills, running straight up one at full speed, and on his nearing the bird—by its crossing into another drill—he will overrun the scent. If up to his work, he will instantly retrace his steps, until, again picking up the scent, he with unerring certainty discovers the whereabouts of the object of his search.

In no case should any sportsman fire into a covey of partridges without discrimination—firing into the brown it is called. Few sportsmen of experience will require this hint; still it must be confessed, when a covey of birds overtaken by surprise flutter out from a hedgerow, grassy ditch, or old quarry, in close proximity to each other, the temptation to an excitable and eager youth to fire recklessly both barrels into the covey is very great. Singularly enough, it will very frequently happen that none of the birds may be killed, but several may be scratched by the side pellets, and

those that so escape for the moment may have sustained permanent injury. The practice of firing at random into coveys of any description is most reprehensible, and should be sternly frowned down by all keepers; and it is a rule, from which there ought to be no exception among sportsmen, that in every case one bird should be deliberately aimed at. Indeed, in all my experience, I never knew a sportsman become distinguished as a good shot where this rule was not strictly observed.

Partridge-shooting in wet weather and in high wind cannot be prosecuted successfully or satisfactorily. True, in such weather the birds do not readily hear the approach of the sportsman. It sometimes happens, however, that in high wind they are reluctant to be driven out of some sheltered cover, and will lie so close as to afford excellent shooting; but, as a rule, in wet and windy weather they are as "wild as hawks." A great disadvantage when shooting in boisterous weather is, that the birds rise behind or at the side without being heard. None but those who have shot with sportsmen that were deaf can have any conception of the value of hearing in partridge-shooting. I have often seen numbers of birds rise close behind and at the side of such a sportsman, but in consequence of his not hearing them they got off scathless.

Though large bags may be secured by guns and beaters walking in line, I never enjoyed it so much as hunting with a brace of pointers or setters. Should pheasants be numerous, I admit the continual pointing and drawing after running birds is somewhat of a nuisance. To get some coveys of partridges broken up and scattered in a field of roots, second-crop grass, or other rough ground, and watch the marvellous instinct displayed by a good pointer, constitutes a pleasure greater to my mind than in walking up the birds, but by the latter method the work done by the retriever is some compensation. A number of guns with a beater or perhaps two between each walking in line, the marching, wheeling, and counter-marching, with the precision of military drill, lacks the sport of having them driven overhead. To shoot birds rising off the ground is a simple matter as contrasted with them flying overhead at a great pace when being driven. It is the achieving what is difficult that gives zest to this class of sport.

In many parts of the country, and especially on large estates where partridges are plentiful, driving has superseded shooting with dogs and



Partridge-driving.

S. Mills

walking up. To achieve success in driving, a study of the fields of roots or other cover, and of the wind from different directions, should be carefully noted. The end of September or beginning of October is, as a rule, the time this sport is resorted to. By this time, except in very late seasons, the fields are cleared of grain and little disturbed. In walking stubbles prior to shooting, the keeper, when birds are flushed, will watch the cover to which they fly for concealment. This observed, he may safely predict that it will be their home for some time, unless when out feeding on the stubbles. The next consideration is, when the roots, or whatever it may be, are driven, where is the cover for them to fly to, and what the nature of the fences to afford concealment for the guns? Assuming there is a high hedge or belt of trees, the shooters stand in line behind it, the distance depending on its height. Diversity of opinion exists about this, but usually the host with his keeper have made arrangements by placing sticks in the ground indicating where the guns are to stand. In no case should a field of roots or other cover be disturbed before the day's driving. The surrounding stubbles should all be driven in before the arrival of the guns, and the drivers ready to start directly they are in their positions. A signal is given if within sight, or by horn or whistle, and the beaters come forward in crescent fashion. While this is being done, another lot of beaters are driving in stubbles to what is to constitute the next drive. It is a mistake to drive fields far away from where birds are first found, as they get out of their latitude, and are apt to fly back over the heads of the drivers to the fields which have hitherto constituted their home. It is better to drive birds down-wind at first, as in their anxiety to return to their own ground they naturally fly better against the wind in the return drive.

After coveys are broken and the birds scattered, they are much more easily driven than when the covey is intact and guided by the parent birds. Single birds add very materially to the bag. Quietness should be rigidly adhered to among both guns and drivers, and where the ground has been previously driven. Should there be a cross wind, common-sense dictates that the beaters on the lee side be well in advance. Only beaters of experience should act as flankers, and, as in grouse-driving, keep their flags out of sight, except when it is necessary to scare the birds in the right direction.

Young cover of a few years' growth is a favourite place of con-

cealment for partridges to fly to. When partridge-driving at Riddlesworth in Norfolk, I observed covey after covey fly into such a young wood, and remember the splendid shooting that was got on their being driven out.

In many English counties, where driving is extensively practised, there are numbers of French or red-legged partridges, which—although they are not so much prized for the table—afford excellent sport in driving. Their flight is not so rapid as the English partridge, and as they more often fly singly, they have less chance of escape. There is this peculiarity in French partridges, that after being flushed once or twice they can scarcely be made to take wing again, and can readily be captured by dogs. When partridge-driving in Norfolk several birds were picked up by my retriever. I brought them to Scotland and turned them out, but they were never seen again. French partridges were regarded as a nuisance so long as pointers were used, but nowadays when driving is so largely indulged in, they may be regarded rather as an acquisition than otherwise.

Mr P. J. Mackie, in his recent work, says, "A new danger seems to have developed, which some say accounts for the scarcity of partridges in districts where they were once plentiful—that is, the higher cultivation of land, and the great increase in the use of artificial manures. As against the increased fertility of the land, partridges, as a sport, must take their chance, and come second. In many districts in England it has been noticed that dead birds have been found to contain arsenic in their crops. How do we account for this? It looks as if the only source can be the artificial manures which are used for keeping up the fertility of the land. If this be the case, there is no remedy."

I am sorry I cannot agree with Mr Mackie in this particular. Some time ago a field of wheat was sown, and six pigeons belonging to some boys, whose home overlooked the field, were quickly feeding on the seed not buried by the harrows. After feeding they returned home, but in a short time were all dead. The farmer was exceedingly sorry about it, and told me it was some preparation used in the pickling of the wheat. Recently numbers of wood-pigeons were picked up dead not many miles from Edinburgh. The crops contained wheat, and a number of birds were sent to me with a request to try and advise as to the cause of death. I submitted one to our leading analyst, Mr Stevenson

Macadam, to examine, and he reported that he found strychnine among the wheat. Surely this is a case for the Board of Agriculture or the Lord Advocate to investigate. Should a pigeon or partridge be picked up and eaten by some poor person, one trembles to think of the consequences.

Few if any birds are more devoted to their offspring than partridges. Even if the mother bird should be killed, the cock will affectionately do his duty, and rear the young successfully. In heavy and protracted rains I have seen the mother bird covering the young after they had perished, where water had accumulated to nearly an inch in depth. Many old partridges are found dead after deluges of rain, no doubt through devotion to their offspring, as, of course, they would not stay with their feet in water, but would fly to higher ground had they only themselves to care for.

In hunting districts where foxes are strictly preserved, many partridges are taken off their nests by Reynard. Stinking stuffs are largely advertised as a certain cure to prevent this, but, as a rule, signally fail when put to the test. That veteran keeper, Thomas Walker, who was long at Edington Hill in Berwickshire, where foxes are strictly preserved, in a letter to his master, stated: "As to keeping foxes from taking sitting partridges, once they make a commencement there is only one way, and that would not benefit the hunt. I have tried all sorts of smelling stuffs, but like many other fancy cures they are not of much good. A well-known firm—and others—have stuff they say protects nests from foxes; all their stuff is 3s. per quart—none of them answer the purpose. The clever cunning foxes, once they find a sitting bird at any smelling stuff, have it all their own way: they go straight to the bird then, instead of having to hunt all the hedgerow for it."¹

In regard to change of blood, it is a simple matter for gentlemen in different parts of the country to annually exchange, say, a hundred eggs, collected as early as possible before incubation has commenced. Sham eggs could be substituted for those taken out to keep the bird laying, and these removed when the exchanged ones are put in their place. Many turn down Hungarian partridges, which breed freely with our own birds. Sir Ralph Payne-Gallwey characterises the introduc-

¹ 'Letters from a Lowland Keeper,' by the Right Hon. H. J. Tennant, M.P.

tion of Hungarian partridges in his 'Letters to Young Shooters' as "never was there a more foolish waste of money." He then goes on to say, "Turn down foreign birds, and they have no home, and will not make one, at all events near where they are given their liberty, but will stray for miles before they settle down, if they do so at all." It is unfortunate Sir Ralph should have indulged in so much self-assertion and dogmatism without practical knowledge. I have had them turned down with bands put on their legs, and have subsequently shot them.



Pheasants in Winter.

CHAPTER IX.

COVERT SHOOTING.

THERE are few, if any, rarer ornaments in a landscape than the pheasant. This bird bulks prominently in covert shooting when the bag is counted out at night. In this class of shooting, as a rule, all that makes sport a manly and exciting exercise is wanting, or is, at least, in many cases greatly subordinated to the mere idea of the head of game to be killed. One of the features in shooting which largely contributes to its enjoyment is the consciousness of the sportsman that the game and he are on somewhat equal terms, that his knowledge of natural history and deadliness of aim are pitted against the cunning and watchful instincts of the object of his pursuit. Under modern conditions pheasant-shooting is not sport so much as a test of skill. No longer is inherited primordial instinct necessary, though nowadays the rearing, preserving, and shooting of pheasants is an important branch of sporting science.

There are many books written upon the rearing of pheasants for the cover, and they are so widely circulated by the purveyors of food for the pheasantry that it is almost superfluous to refer to it at all. I may mention, however, that the first consideration is to get a field sheltered from wind, avoiding cold, damp, or clayey soil as much as possible, and, if at all attainable, a fresh one every year, as it is a safeguard against epidemics. Keepers of experience know that when enteric prevails among pheasant chicks, carrying off large numbers daily, by simply changing them to fresh ground mortality is generally arrested. Fields which have carried a heavy flock of sheep should be avoided, as I have known mortality set in amongst the birds, and on dissection found small quantities of wool which they had swallowed. Early rising and cleanliness are indispensable, the food being mixed in the morning before feeding, for if kept overnight in hot weather it is apt to sour—in which state, it is needless to say, it engenders disease. The dishes in which the food is mixed ought to be kept scrupulously clean, or disastrous results may ensue. Every manufacturer very naturally recommends his own food-supplies as the best in the market, this recommendation being, of course, supported by numerous testimonials; but beyond all question the successful rearing of pheasants depends more on attending to the rules indicated, and genial weather, than on the food of any particular purveyor.

Every gentleman who rears pheasants should see that his keepers have access to his books on Sport, and especially to 'Shooting the Pheasant,' by A. J. Stuart Wortley, in the "Fur and Feather Series," and Tegetmeier 'On Pheasants.' It is surprising how people like to read a description of what they know about, and it may be assumed that gamekeepers of experience know something of pheasant-rearing. It will be strange indeed if they do not find something to their advantage by a perusal of the books referred to. There is one point, however, where I cannot agree with these gentlemen, much as I respect them, and have enjoyed and appreciated their writings on the subject. I refer to the former's remarks on pages 199 and 200 about pheasants scratching. I have reared pheasants from the egg to adult size, have watched them in the pens, and have never seen them use their feet to scratch like domestic poultry, with which we are all so familiar. I have also from an ambush watched them in a spruce wood at the feeding place where I had scattered maize and covered it with rakings which had

been trampled and broken short. In no case did they use their feet, but picked through the half-rotten straw with the bill, an instrument admirably adapted for the purpose. Mr W. B. Tegetmeier, in his instructive book, says of the pheasant: "Its legs, like those of all true rasorial or scratching birds, are strong and muscular, consequently it is capable of running with great speed. The strong blunt claws are admirably adapted for scratching seeds and tuberous roots from the ground, or worms and larvæ from beneath fallen leaves." All I can say as to this is, that though I have often watched pheasants feeding, I have never seen them scratching.

Notwithstanding the shortness of their wings, pheasants fly with great velocity when once in the air, and afford excellent shooting as they pass overhead. Indeed, in some places it is a rule that the guns placed in line with the beaters shall shoot only ground game or birds that fly back, in order that those stationed at the end of the wood may get "rocketing" shots at the pheasants. The same remark applies to shooting ground game or birds flying back when beating a wood slowly forward with the view of driving them on to a "flush." The "flush" should consist of a thick clump with plenty undergrowth in order to prevent birds running on to the end and rising in a bunch. It should be as far off as birds can be driven on their feet away from the haunts that constitute their home. They are then more easily driven homewards on the wing. At Riddlesworth in Norfolk, one of the "flushes" consisted of a considerable area of thick bracken at the end of a wood into which birds are previously driven on their feet. Well do I remember the large bag of cartridges emptied at that rise. When the birds have been driven into the "flush" the guns are placed in position, generally arranged the day beforehand by inserting sticks in the ground with a number card stuck in a cleft made by a knife. Sir Ralph Payne-Gallwey asserts that no keeper should ever be allowed to place the guns. Why? Sir Ralph gives the reason that he once overheard a head keeper remark to one of his fellows, "Put the sovereigns at the wood end, Bill, and the half sovs. can walk with the beaters and stop back." Unfortunately, Sir Ralph does not tell us where he overheard this, and it would be interesting to know which category he was included in. It is generally believed that the idea originated in his own vivid and fertile imagination. I have been at many covert shootings even in Norfolk and Suffolk, and in my keenness to get started, have been annoyed at the delay through

the host going to point out his stand to the shooter. Surely this can be arranged the day before when the numbered sticks are put down and arrangements made for each gun to draw for his stand, as is done in grouse-driving. Any under-keeper or beater who knows the ground could then place the guns without the slightest fear of unfairness.

After having reared a large head of pheasants, one of the principal duties of gamekeepers nowadays is to convert them into "rocketers"—that is, to make them fly high over the heads of the gunners. According to Horace, the poet is born, not made. Mr Bromley Davenport, in his charming book, says, "The rocketeer is the reverse of the poet—he is not born, he is made. The gun cannot drive him, he must be driven to the gun." In places where covers are on level ground, it is not so easy to make "rocketers" as on hillsides. Yet there are devices which attain this object, such as placing nets across the cover a considerable distance from the stands, or the guns being placed a distance back between the cover and the wood the birds are driven to. It is the exhibition of skill and the achieving of that which is difficult which gives the charm to cover shoots when birds are put high over the heads of the guns. Still it can be overdone, and shooting at birds too high for the gun to kill dead is cruel in the extreme. How often does one see birds draw themselves together when the shot hits them, then carry on to the next wood, where they may be found dead or maimed! I know of a cover shoot, and on one of the stands called the "valley of humiliation," the birds come too high, and many shots are fired by the best of gunners with poor results. No doubt it is humiliating to fire perhaps a dozen shots with only one or two to pick up.

Perhaps the finest cover shooting I ever enjoyed was at Ardlussa in Jura. No making of "rocketers" is necessary there, as the birds rising on the hillsides flew over our heads at altitudes that not unfrequently set my "Purdey" at defiance. I soon, however, learned to pick my shots, and leave the very high ones to wend their way unmolested. Variety constitutes a charm in shooting there, and it is not uncommon to get a "right and left" at a pheasant and a blackcock or a woodcock, as the case may be.

Generally speaking, the food put in the covers for pheasants is maize or barley, on which they are fed throughout the autumn and winter months after being removed from the rearing-field. Rakings of



Pheasants rising.

barley are, as a rule, put in suitable centres in the different woods for the purpose of attracting the birds, and amongst these the maize or other food is put down. That supplied in the rearing-field is generally given them once a day for a time, but eventually maize only. Where the estate is extensive and there is no danger of them straying on to another property, I am inclined to think that when full grown one feed per day is sufficient if given regularly at the same hour, except in snow and hard frost, when more is required. In the park where I have spent the greater part of my life, a never-failing source of amusement is to watch pheasants coming to feed on a lawn close to the house, where maize is put down for them regularly at the same time every morning. Hand-reared birds are not here referred to, no rearing having taken place for at least half a century. Anxious to photograph them, I waited patiently for a fall of snow, knowing they would come out more distinctly on the white ground in the picture. At last we had a snowstorm, but not a single pheasant came to feed that morning. I had quite forgot that in my young days, when it was my duty to feed pheasants, they did not come to the feeding-place the first morning after a storm. If they roost on spruce or yew trees, they sit on them all day; if on larch or hardwood trees, they come off their perch and sit under a spruce or thick bush which protects them from the snow.

No amount of maize put in a wood will prevent pheasants from straying should there be stubbles near, it being the nature of the birds to search for their food, many insects, herbs, seeds, &c., being included in their bill of fare. A complaint was recently made by a farmer against his landlord for pheasants destroying his grass and clover field. Asked to become a witness, and in order to post myself up for cross-examination, I wrote to proprietors, factors, and keepers all over Scotland, asking them to shoot a cock pheasant and send me the crop. It was in the spring, after the shooting season had terminated, and farmers were busy sowing their corn. The variety of food I found in twenty crops surprised me, as scarcely two contained the same thing. In only two was corn found—a very few grains of barley in one, and in the other oats. Of course there were other things besides the corn of a vegetable nature. In some the crops chiefly contained the flower and root of *Ranunculus ficaria* or lesser celandine or pilewort. Others were pretty full of whin-bloom, some packed with the buds of buttercup, the roots of plantain, fragments of grass, decayed or half-rotten potatoes, seeds of grass and weeds, and

various vegetable matter, besides numerous insects. The case, unfortunately, never came to court, or I could have produced the crops and proved that little damage is done to agriculturists by pheasants.

It must therefore be apparent that different foods should be placed in the covers besides maize. Every one interested in sport must have noticed how partial pheasants are to potato-fields both before and after the crop is lifted. As small potatoes can be bought for a mere trifle as contrasted with maize, a quantity boiled should be put down at the feeding-places. As already mentioned, vegetable matter is largely devoured by pheasants, and to put lettuce, cabbage, &c., at the feeding-places will be an inducement for birds not to stray. If no water be near, a trough should be kept in proximity to the feeding-place. In the feeding of pheasants in the cover, if not near a march, by putting down corn at the same hour every morning, pheasants will come regularly to the feed. They can then be left to forage for themselves for the remainder of the day, when acorns, beech-mast, and other food already mentioned will find their way into their crops. In this way the keeper will ascertain how much maize is required, and he should see that it is all picked up. This will obviate waste by pigeons and rats. There are numerous devices for feeding pheasants with the view of preventing the corn being pilfered by other birds and beasts. The cast-iron feeding-troughs which open with the weight of the bird on the bar in front are pretty common, but when examined by gentlemen who shoot much they are very liable to get out of order. Wooden troughs suspended from trees low enough for pheasants to feed out of are also used. They are too high for pigeons, and as far as I have seen, rats do not get into them. Tomtits, however, are destructive among the maize. I watched one for a couple of hours, and in that time it lifted forty-three grains of maize from the trough, flew up on to the branch of a tree, and after a few pecks at the part where it had been attached to the stalk, dropped it, and down to the trough for another. Unquestionably the best method of feeding pheasants is to scatter a sufficiency of food at the same time every day, taking care it is all eaten up and none left for rats or pigeons.

Pheasants occasionally choose curious places to nest, no doubt selected in accordance with the laws of the magical interpretation of nature, sometimes like a pigeon in a tree. One was discovered nesting in a spruce-tree at Laidlawstiel overlooking the valley of the Tweed.

It was about twenty feet from the ground and had apparently taken advantage of the old nest of an owl or that of a pigeon. It contained eleven eggs, which the keeper appropriated to hand-rear, thinking if the eggs were hatched in the tree the chicks would not get to the ground alive. A similar case was discovered at Yester in East Lothian, and for the same reason the eggs were removed. It was, I think, unfortunate, as in both cases it would have been exceedingly interesting to have discovered how the birds would have acted when the eggs were hatched.

An interesting illustration of the confiding nature of a pheasant recently came under my notice. While a farmer on the Charterhall Estate in Berwickshire was carting manure from a heap for the purpose of manuring a turnip-field, it was discovered that a pheasant was sitting on her eggs in the middle of the heap. As the manure was specially required to finish off the field, it was impossible to leave the pheasant there, much to the farmer's regret. He, however, instructed one of his men to insert a graip carefully among the manure beneath the nest, and to lift it some distance away. Incredible as it may appear, the bird became a partner in the transaction, actually sitting still while the nest was being carried eighteen yards and deposited in a suitable place. The distance was subsequently carefully measured by the gamekeeper. The nest was watched after being shifted, and when the bird went off to feed in the evening it was fully expected that she would search for the nest in its original place. Such, however, was not the case, as she went straight to her new quarters. The removal of the nest took place on the 23rd of May, and the pheasant hatched out a week later. There were nine eggs, and seven of them hatched, the other two being infertile.

A curious habit of pheasants is to crow during the night after a peal of thunder, the firing of a big gun, or other abnormal noise, thus betraying their whereabouts to the poaching fraternity. During the Zeppelin raid on Edinburgh in 1916 every pheasant within a radius of twenty miles crowed at each report, as if vying with each other which would be loudest.

Pheasants fly with great rapidity, and in a number of cases I have known them fly through a plate-glass window of Craigend Park House, about a mile from my home. My attention having been called to the fact, I naturally felt puzzled, but on looking straight at the window from a distance, I observed that the trees were clearly and distinctly

the gunners. In point of fact, no one can tell which is the wild-bred and which is the hand-reared.

Reverting to alleged destruction of crops by pheasants, during November and December I shot a considerable number near my home. They were feeding on stubbles. Standing behind a stone wall on several occasions I had them driven past me, and generally secured a brace. Most people imagine when they see these birds on stubbles, it is grain left on the ground they are in search of. Knowing, however, that any grain left in the field after the farmer's rake must long since have been picked up by sparrows, rooks, pigeons, starlings, and other birds, I was interested to discover what was the attraction to the fields in question. When shot late in the afternoons it was found the crops of both pheasants and partridges were fully distended and contained thousands of seeds of *Polygonum aviculare*, or knot-grass, which is a very common weed on arable land. Many stubbles had quite a reddish appearance in consequence of the decaying stems of this plant, which in some fields were to be seen in great profusion. That distinguished Mid-Lothian agriculturist, the late Mr Alexander Walker, used to say that "weeds are an awfu' expensive crap to grow"; and beyond doubt a heavy toll is taken of the fertility of the soil by the weed in question. I did not undertake the counting of the number of seeds of this noxious weed in the crop of one single pheasant, but certainly there were thousands.

Mr Tegetmeier, who has made pheasants the study of his life, says: "The value of pheasants to the agriculturist is scarcely sufficiently appreciated: the birds destroy enormous numbers of injurious insects—upwards of twelve hundred wire-worms have been taken out of the crop of a pheasant. . . . There is no doubt that insects are preferred to grain: one pheasant shot at the close of the shooting season had in its crop 726 wire-worms, one acorn, one snail, nine berries, and three grains of wheat." Lord Lilford corroborates this, and says: "The pheasant, where not preserved in unreasonable numbers, is a good friend to the farmer from the enormous numbers of wire-worms and other noxious insects which it devours, to say nothing of its liking for the roots of various weeds."

Some of the vegetable matter found in the crops of pheasants appeared to be the fronds of fern or bracken, these being brittle when they first come through the ground. Possibly I may be wrong, as they were so much assimilated that it was difficult to determine. I have

never seen pheasants eating them, but I have observed grouse doing so, and they seemed to be specially fond of them.

It must not be supposed that I am attempting to prove that both pheasants and partridges do not eat grain nor do a modicum of injury to farm crops. It should, however, be kept in mind that this is more than counterbalanced by the good they do as described. Any killed on or near stubbles after harvest are almost certain to have a considerable quantity in their crops. At that time, however, when the grain is safe in the garner, what is left on the ground may as well be eaten by pheasants and partridges as by rats, sparrows, rooks, or pigeons. As already indicated, in the spring they feed much more on vegetable food. This I have clearly observed by putting down maize for them daily well into the summer. Of course, hens disappear to nest, and few of them turned up again at the feeding-place. Cocks came for some time, and after picking a few grains went off to search for variety elsewhere.

I am well aware that pheasants are practically omnivorous, but I mentioned only what I found in the crops of the birds I examined. Country schoolboys know that pheasants devour large quantities of beech-mast, acorns, hazel-nuts, seeds of sedges, grasses, and weeds, and almost every kind of berries and fruit. They are specially fond of the spangles of the oak, which are found on the under side of the leaves, caused by the eggs of the gall-fly being deposited in them. The grub is a considerable size by the time the leaves drop off, and many of them separate from the leaves and are picked up in thousands by the birds in question. I have shot pheasants with nothing else in their crops, though they were bulged out like those of wood-pigeons after having gorged themselves on a field of turnips or clover.

As stated, I did not attempt to count the number of seeds of the *Polygonum* in the crops of the birds, though I said there were thousands; but Dr Balfour, Professor of Botany, was kind enough to undertake this for me. I therefore sent him the crops of a pheasant and a partridge shot as described. He kindly gives the contents of a pheasant's crop as follows:—

Polygonum aviculare, 14,696 seeds; *Fumaria officinalis*, 1230 seeds; mericarps of *Aethusa cynapium*, 21 seeds; nutlets of *Galeopsis tithrahit*, 27 seeds; seeds of *Atriplex* sp., 5; a few fragments of grass; 2 small potatoes; 3 grains of wheat.

The contents of the crop of the partridge were: *Polygonum aviculare*, 2974 seeds; *Fumaria officinalis*, 642 seeds; seeds of *Atriplex* sp., 4; fragments of grass, &c.

As will be seen, if the birds picked up the seeds singly, they must have had a tedious job.

I once sowed the miscellaneous contents of the crop of a pheasant in flower-pots, and noted that celandine and buttercups were the only plants that sprung up.

THE WOODCOCK.—In cover shooting, should a cry of woodcock be heard, how eager every one is to catch a sight of the migratory



Position before rising.

stranger. Why this eagerness to shoot a bird which for actual value is by most people not to be compared to a pheasant? The answer is to be found in the circumstance that every feature of a domestic kind is absent in the woodcock, while they are all notoriously present in the pheasant.

There are few birds whose habits are more shrouded in mystery

than those of the woodcock, *Scolopax rusticola*. It is placed by naturalists at the head of the snipe genus. A century ago it was generally believed that woodcock did not breed in this country, and when nests were first discovered it was asserted that the birds had been wounded in the shooting season and were thus unable to cross the sea. I can remember shooting a woodcock, considerably over half a century ago, at the end of April, in a fox-covert on the Scottish side of the Tweed opposite the ruins of Norham Castle. On one of its claws there was an injury which was regarded as a gunshot wound, and this was believed by all the keepers in the district to be the reason why it had not migrated.

How far the theory is correct that woodcock first remained in this country to breed from disability to migrate in consequence of being wounded, and that their progeny continued the habit, it is impossible to say. It may be argued that two birds would require to be wounded in order that they might remain together and pair. It is, however, easy to see how one might mate with a bird that had been wounded and remained to nest in this country with the partner of his or her choice. Of this there is no doubt, that large numbers do breed in the British Islands, and that these have increased during the lifetime of the present writer.

Woodcock breed early, and their eggs are usually found in the middle of March. Practically no nest is made, the eggs, generally four in number, being laid in a slight hollow among leaves, in a tuft of grass or bracken, frequently near the root of a tree. As near as can be guessed from daily observation, by watching the date when the last egg was dropped till the shells were found and the chicks gone, the period of incubation is twenty days. Though four eggs is the normal number, I have seen five; but in no case, so far as I am aware, have five chicks been seen with the parent birds. Pheasants and other birds not unfrequently drop eggs in the nests of others, and the chances are the same thing may happen in the case of the woodcock. Like the plover species, curlew, &c., four is the usual clutch.

When hatched, the young chicks quickly run off in the same manner as young ducks or golden plover. So soon as the young birds are strong on the wing the large majority of them leave the district, and the mystery associated with their subsequent wanderings has never been satisfactorily cleared up. In this they somewhat resemble the salmon, whose habits can be traced from the cradle to the grave, or rather from

the egg to the fish-kettle, so long as they are in our rivers, though we are quite "at sea" in regard to their marine wanderings. In the case both of the salmon and the woodcock, a few are killed in the river or locality in which they are marked—but what of the great majority?

Having in my youth perused 'Wild Sports in the Highlands,' by Charles St John, where it is stated woodcock carry their young, and having frequently observed them fly off from their chicks in their characteristic semi-horizontal and semi-vertical fashion, with their legs hanging and their tails spread and curled down like a lobster's, I naturally concluded a chick was being carried off. One day, however, when spending a holiday with the late Dougal Campbell, the stalker in Strathconan Forest in Ross-shire, a woodcock rose at our feet and flew off, carrying, as we thought, a young one. The bird alighted on a bare field about a hundred yards distant, and I suggested going to see if she would lift the chick a second time. On nearing her she flew off in her usual manner without the appearance of carrying anything, and though the ground was so bare that even a mouse could not have concealed itself, no young bird was to be found.

From that time I became sceptical, and my scepticism has since been confirmed by many practical naturalists who live among the breeding haunts of the birds in question, and who have had abundant opportunities of studying their habits. Mr Meech, head keeper at Alnwick Castle, who for twenty years and more has caught a great many young woodcock, frequently over fifty, and put a marked ring on one of their legs, will not believe in the carrying theory. One day when in the park, accompanied by two young gentlemen from the castle, a woodcock rose at their feet, and one of them cried out: "A woodcock carrying a young one!" and bolted after it to see where it would alight. Mr Meech's words to me were: "I could have sworn it was carrying a chick, but happening to look at the ground I observed the four young ones, and on picking one up to put a ring on its leg, found they had been ringed a week before by one of my men within twenty yards of where we had found them, so that they had not been carried far during that time."

As already said, Mr Meech has marked many woodcock chicks, some of which have been killed in different parts of England, in Scotland, Ireland, Wales, and France, and about ten per cent in the locality where they were marked. Whether these had never left the district, or

whether they had migrated and returned to the home of their babyhood, will never, of course, be known. In a recent letter from Mr Meech, he says: "I have not seen anything fresh to report about woodcock. I have certainly not seen the young carried yet, and I think that if I live till I see it, I shall not die just yet."

The Hon. A. E. Gathorne-Hardy, in his charming book, 'Autumns in Argyllshire,' states: "In one single August morning I have seen no fewer than eight woodcock flushed, each carrying a young one curiously huddled up between its beak and feet." A year or two after this was recorded, a new head keeper, James Wills, was appointed at Poltalloch, the place where the eight woodcock carrying a chick one morning were alleged to have been seen. Will it be credited that after ten or a dozen years' careful watching the keeper has *never once* seen a chick carried, though it is his daily duty to search for pheasant eggs at the nesting-time, which is also the time and place for seeing broods of young woodcock? So deep rooted is the belief there that the chicks are carried, that whenever one rises in her feinting manner, the old keepers jump to the conclusion that she was carrying off a young one; but with the closer observation inaugurated by Mr Wills it has been proved a fallacy. Few people will believe that eight woodcock were seen carrying a chick one morning in August—young birds so late in the season being exceptional—and that an intelligent and observant keeper at the same place, with many more opportunities, has not seen *one* in ten or a dozen years. So many gentlemen whose veracity may be regarded as unimpeachable assert they have seen woodcock carrying their young, that it would be discourteous to repudiate their statements. What surprises me, however, is that most of those who affirm they have seen woodcock chicks carried, have only witnessed such a thing once or twice in a lifetime, and that men who have studied the question for thirty or forty years in districts where many breed have never seen it, and are sceptical of woodcock carrying young at all.

Richard Kearton, in a footnote to his edition of 'White's Selborne,' says: "We have seen a woodcock carrying her young between her legs, supported by the toes and claws of both feet, whilst flying through the air, in the Isle of Mull." I am not prepared to say that Mr Kearton was mistaken, though I am of that opinion. Is he not as likely to be in error as I was for many years? I may mention that about forty years ago I was struck with the intelligence of a young shepherd, and his

knowledge of the haunts and habits of birds and beasts, at Dalnaspidal in Perthshire. As he was anxious to become a keeper, I brought him south and got him a situation as under-keeper in Linlithgowshire. In order that he might acquire experience, I afterwards got him a situation in the Isle of Mull, on the estate of Mr Allan of Aros. Two years afterwards the head keeper left, and my young friend, Sandy Fraser, was installed in his place. Subsequently he was promoted to the position of factor on the estate. All through life he has been a close observer, and as woodcock breed there in large numbers they have naturally attracted his attention. At my request he shot three birds in the supposed act of carrying a young one, but in no case found the chick. As this was a cruel experiment, he discontinued it and adopted different tactics. When one rose in the usual labouring fashion, he told his retriever to "go fetch it." The bird quickly drew up its legs and elevated its tail, and flew off in its normal fashion, but nothing dropped from it. Is it not strange that after five-and-thirty years' close observation in the Isle of Mull he should never see a young woodcock carried by its parent, and yet Mr Kearton on an occasional visit should witness it?

As much diversity of opinion exists among keepers as to whether woodcock carry their young or not, they should imitate Mr Fraser and send their retrievers after the feinting birds, and watch carefully if anything should drop from them. Mr Watt, while gamekeeper at Kildalton in Islay, did this, and it was supposed the bird had been watching him, as the dog jumped up and caught it; but no young was found. As a rule, though they fly slowly, they generally keep out of the way of a dog. When so many people wrote in the 'Scotsman' that they had seen a woodcock flying off with a chick, one going the length of seeing a dozen in a day, I replied I would give twenty guineas to any one who would let me see it. Needless to say I still have the twenty guineas!

➤ Sir Ralph Payne-Gallwey says: "That the woodcock conveys its young from the woods to the marshes and other feeding-grounds has been frequently proved by observation, but how it does so is still a moot point among naturalists—whether with its feet, or with its bill, or under its breast. We can only say, our opinion, from seeing more than one in the act, is that the young are carried in the claws of the old bird, which are pressed tightly to the breast." Sir Ralph says he has seen "more than one" carried, but I ask in all seriousness, Is he not as likely to be

new or used bore other but a Best Quality firearm - who did great damage to the woodcock with is splendid 8 bore double shotgun & who wrote the Treatise on the Woodcock.

mistaken as Mr Meech was when the one rose at the feet of the two gentlemen from Alnwick Castle and himself? As to carrying their young to marshes to feed, this has long since been exploded. Charles St John, in his book published about seventy years ago, says so, but he adds the following saving clause: "I have, however, ascertained that the woodcock lifts the young in her feet, and carries them one by one to their feeding-ground. Considering the apparent improbability of this curious act of the woodcock, and the unfitness of their feet and claws for carrying or holding any substance whatever, I should be unwilling to relate it on my own unsupported evidence."

He then goes on to say that it was corroborated by some foresters and others, and subsequently refers to it as a fact. It must, therefore, become apparent that this great observer was not even sure whether it was a young one or not that the bird was carrying; and again I ask, Was he or Mr Richard Kearton not as likely to be mistaken as Mr Meech and myself?

A correspondent of the 'Scotsman' wrote that he saw a woodcock carrying a young one, and on whistling and shouting it dropped its burden. This looks like proof positive if it could be verified. Unfortunately the same writer took part in a discussion about the length of adders, and capped everybody by asserting that he saw one $38\frac{1}{4}$ inches in length, so that his evidence may safely be consigned to the region of romance. L

Another enthusiast, Mr Walter Swanson, wrote that he saw a woodcock carry four chicks into a marsh, and as it was dark he got a gig-lamp and found three of them. This by many will be associated with moonshine. Mr Swanson said he "would like to ask some of the close observers to take notice of the abnormal sinews of the bird's thighs," and asks, "What has nature placed them there for if not for carrying purposes?" It is evident he has never drawn the legs of woodcock, or he would see the absurdity of his allegation when contrasted with those of a partridge.

While the discussion was going on in the 'Scotsman,' I received a letter from a practical and observant naturalist, Mr James Cairns, Carlisle, who said: "You will remember I promised to acquaint you of, after close observation, woodcock carrying their young. Last season and this, two intelligent keepers have failed to find one single instance. Davidson put rings on fifty-six last year, this year not so many, as they

seem scarcer. Paterson and the writer never missed the opportunity, when a woodcock was flushed, to search and find the whole brood. Last night the writer had the clearest view of the way she drops and spreads her tail, which misleads people."

I have very often witnessed woodcock performing their aerial manœuvres in the twilight, but on no occasion have I seen a young one carried. Common-sense must dictate that these birds do not carry their young to feeding-ground, as they are insectivorous birds, and all this class feed very often. The nights are so short at the time they are alleged to be carried, that if they feed only in the dark they must necessarily have long fasts, which is at variance with the habits of all birds that feed upon insects. If they carried their young to marshes during the day they would, of course, be seen by everybody.

What is the feeding-ground of woodcock in summer? I have watched the brood feeding, and witnessed the mother bird boring and turning over leaves and decayed vegetable matter with her long bill, while the chicks picked up the insects exposed to view. This was on the hillside in the valley of the Ettrick, a long distance from any marsh. I have dissected the gizzards, and found centipedes and other insects peculiar to the hillsides and woods, and not those found in marshes. Not being an expert in insect life, I took the gizzards to that well-known entomologist, Mr Percy Grimshaw, of our Royal Scottish Museum.

It is surprising how little is ever found in the gizzard of a woodcock shot during the day. I have dissected scores of them, and found that unless shot immediately after feeding, practically nothing can be seen. Once, however, I shot a cock as it flew out of a ditch, and found a worm, which it had been in the act of swallowing, partly in its mouth and partly down its throat. I have got the gizzards—called by cooks the sand-bag—of a number of woodcock, and emptying them into a saucer, I poured water on the contents to wash off as much of the earth as possible. I then placed it on a sheet of white blotting-paper, and putting it in a warm place, had them effectually dried. Even with the aid of a magnifying-glass, little was found to guide me as to what the birds had been feeding on. The contents appeared to be the residue of what had been swallowed, and evidently of a vegetable nature, all insect or animal food having been digested. It resembled the fine fibrous roots of some plant, which doubtless was swallowed along with worms or other creatures picked up by the birds. Compared with those of

granivorous birds, the gizzard of the woodcock is a delicate organ. This is no doubt due to the soft nature of the food, which is so much more easily digested than grain. It also picks up small stones, which are found in the gizzard in the same way as in other birds, to assimilate the food and assist digestion. The way the contents of the gizzard are sometimes entwined almost forces one to the conclusion that, like predatory birds, woodcock cast the indigestible parts of what they swallow. I cannot prove this, but as I have kept all the hawk tribe, from the eagle downwards—owls, herons, kingfishers, &c.—as pets, I have been much interested in castings. To my mind, the woodcock is strictly insectivorous, and anything of a vegetable nature is swallowed involuntarily, in the same way as a hedgehog occasionally swallows a blade of grass when grubbing for insects among the roots.

Once when watching with a pair of binoculars a brood of young woodcock feeding, I happened to show myself. The old bird lifted her head, spread her tail over her back, then down went her bill, which she used as a lever to assist in throwing herself into the air, and off she flew in her usual feinting manner. Hiding for a time till she returned, and again showing myself, off she flew again, performing the same manœuvre.

Young woodcock are very active, and run about far more than one would believe when searching for food. Any insects that come in the way are picked up, and small worms are found among the roots of the bracken. Old woodcock run about a great deal at night when feeding, as those who have studied footprints in the snow can testify.

Knowing there are always plenty of woodcock nests to be found in the policies of Bowhill, the seat of the Duke of Buccleuch in Selkirkshire, I, after communicating with the head keeper, Mr Martin, repaired thither. Acquiring a fifty-yard roll of small-mesh wire-netting, with the co-operation of the keepers, we soon found a nest in a suitable place among some natural birch and bracken. The fifty-yard roll enclosed an area of about 200 superficial yards around the nest, the bird sitting all the time while the posts were being driven in and the netting secured. It was feared that if the sitting bird flew off in the dark she might fly against the wire, and in order to avoid this we hung decayed bracken over it. For ten days she flew out and in when off feeding. At last the eggs were hatched, when she was watched with a pair of binoculars from a hiding-place in close proximity. Round and round the netting

she led her progeny, but no attempt was ever made to lift and carry them over, though only eighteen inches high. This went on for two days, but on reaching the spot the third morning, the old bird was observed outside the netting sitting disconsolate-looking and gazing inwards. It was then discovered that while close to the young, they were separated by the wire-netting, and that the chicks were dead. It was evident they had perished from cold and not from hunger, as a small worm and a few remains of some black insects were found in their gizzards. I do not for a moment wish to assert that this proves woodcock do not carry their young, but it is at any rate positive proof that this particular bird did not do so. It also goes far to prove woodcock do not carry their young a distance to feeding-ground. Andrew Warwick, one of the keepers at Bowhill, who is an accurate observer, says: "Whether or no woodcock carry their young at other places, I dinna ken; but this I dae ken, they dinna carry them at Bowhill."

Two years ago I had a visit from Mr James Bunyan, head keeper, Ballyraine, Glenart, Arklow, Ireland, where woodcock breed in large numbers. He assured me he had often seen woodcock fly off carrying a chick. Discussing the subject with him, and asking him to observe more carefully, he wrote me some time after: "Your argument rather staggered me, and I must now confess that I could not swear it was a bird that was being carried."

The same remark applies to Mr Stewart, the keeper at Lindertis, in Forfarshire, where woodcock were seen in the act, or the supposed act. After discussing the subject with him, he carefully watched the following year and wrote me: "I have watched the woodcock very carefully, and have not seen any of the young getting a lift. I saw in all eleven different broods, and twice I watched the old birds come back and flushed them again, but they flew off in the old style, legs hanging and tail dropped down between them."

A Mr Dunbar wrote that negative evidence is no use anywhere, and that he had seen a woodcock carrying its young himself, so that there was no mistake about it. "If," he says, "I have seen an individual drunk, it matters not how many have seen him sober." Once when accompanying the gamekeeper in the Gallachlaw Wood—associated with memories of Oliver Cromwell, whose army encamped there—on the Mortonhall Estate, he fired at and wounded a rabbit, which escaped among a profusion of bracken. Putting the retriever on the trail, it

rushed in, when a pheasant rose and flew off in a peculiar fashion. When about fifty yards off, something dropped from her, and on going to the spot I picked up a young pheasant. I have seen this on another occasion, and every keeper of experience has found pheasant chicks hanged by the feathers of their foster-mothers becoming entwined around their necks. No evidence, however, "negative" or positive, will convince me that pheasants carry their young.

I have been instrumental in causing scores of keepers to alter their opinions in regard to this peculiar trait of the bird in question, but it would be superfluous giving more illustrations in point. I may be excused, however, recording the statement of a well-known Perthshire laird, a keen sportsman and close observer, Captain Graham Stirling of Strowan. In a letter to me, he writes: "You may remember you wrote to me about thirty years ago regarding woodcock carrying their young. At that time I believe you thought they did, and I wrote that I had seen them also. These statements were to the best of my belief at the time, but they were casual. Last spring and summer I saw a good many woodcock which to the casual observer would seem to be carrying a young one between their legs, but in no case were they doing so. It was simply their tails curled down between their legs. I have gone to the spot where they alighted with what I took to be a young bird, but no young bird was there. When I flushed them a second time they flew off in their usual manner."

How to acquire knowledge of the mysterious and erratic habits of woodcock is a question interesting to most naturalists. Do woodcock carry their young, or do they not? or is it the everlasting conflict between ready credulity and trained knowledge? It is, however, gratifying that public notice has now been called to the matter, and that more attention is being directed to it. My desire is for truth, but, as has been shown, when men with trained powers of observation, and who have spent their lives in the breeding haunts of the bird in question have never seen it, and yet gentlemen whose veracity may be regarded as unimpeachable assert they have, we are left in a state of helpless uncertainty. Personally, I am sceptical; but it may happen on occasion accidentally, as in the case of the young pheasant referred to.

Those who have made a special study of woodcock affirm that probably 90 per cent at least of the "woodcock shot in the British Islands are migrants." Others assure us that none of the birds bred on

their properties remain. The Alnwick experiments, however, refute the latter theory, though it is true that the majority do not stay with us. The movements of woodcock in this country are indeed mysterious. They are here to-day and off to-morrow, but none can tell why they so act.

Woodcock sometimes breed oftener than once a year. As already said, they generally nest in March, and the young are hatched in April.



Woodcock flushed from her Young.

Unfledged birds are sometimes found in August. When shooting grouse with pointers in Argyllshire about the middle of August, the dog made a steady point, and on going up a brood of woodcock was flushed. Killing the parent bird and one of the young ones, I marked the remaining two down, and on going up secured them also. It must, therefore, appear manifest that woodcock occasionally breed more than once, though it is asserted that in such cases the first clutch may have been destroyed. The chances are that, nesting so early, many eggs will be destroyed by frost. I have, however, known a wild-duck, identified

from a white spot on her neck, who reared two broods in a season; and if woodcock have young in April, there is no reason why one should not occasionally rear another brood in July or August, though it may not be their normal habit.

Concerning the migration of birds we have yet a great deal to learn. It used to be believed that woodcock crossed to this country from Norway and other parts of the north of Europe by moonlight. Charles St John, in his book already referred to, says: "A few come in October, but the greatest number which visit this country arrive in the November full moon, these birds invariably taking advantage of the lightest nights for their journey." This, however, is not the case, as is proved that on dark nights, without moon, they are frequently lured to their doom by artificial light, numbers being killed by flying against the glass of lighthouses during their annual flight.

Woodcock are found all over Europe, and in what numbers they come to this country from Norway it is impossible to say. I was much surprised, when on a sporting tour in that country some years ago, only to see one woodcock. Elk were hunted in the great forests in the valley of the river Glommen, reindeer were shot in the fjelds in different parts of the country, red-deer were stalked on the islands and mainlands on the west coast, and ryper were shot over pointers among scrub in various localities; yet only one woodcock was flushed! This was the more surprising as the tour took place in September, which is prior to the time when these birds migrate to this country.

Woodcock in large numbers occasionally arrive and alight on our East Coast, and, after resting, immediately cross the country, as they are generally found in greatest numbers in Ireland and the Western Islands of Scotland. Flights of them have been known to alight on the Isle of May, in the Firth of Forth. When woodcock arrive in a locality they should be shot at once, as, if delayed for a day or two, it may be found that they have taken their departure, though no reason can be assigned why they should do so. I have never been fortunate in taking part in a big woodcock shoot. On one occasion a telegram arrived, "Lots of woodcock in!" and next morning I started for the Mull of Kintyre. By the time the ground was reached they were gone, and four and a half brace were all that fell to my gun. The following week another flight came in, and one hundred and fifty were killed by the keepers in two days.

In the same way I was disappointed in a cover shoot in the island of Jura. Being invited to shoot at Ardlussa in Jura at the end of November, I started off full of hopeful anticipation that a large bag of cock would be secured. There had, however, been no frost, the weather was too mild, and no flight had come in. Though a good many were bagged, the number was trifling in comparison with what might have been secured with favourable weather for fetching them from their northern haunts.

Note on the Woodcock. By Lieutenant-Commander J. G. Millais, R.N.V.R.

One of the most remarkable points in the anatomy of the woodcock is the pliability of the tail in its attachment to the vertebræ. The bird can and does use its tail with a freedom unknown to other species. In fact, in almost every effort of exertion there is a corresponding movement on the part of the tail. I kept a tame woodcock for six months, and noticed that in almost every muscular action the tail was brought into play. If the bird is burrowing for or pulling out worms, down goes the tail to the ground to act as a leverage. Similarly in rising, as the bird squats or bends down to rise the tail is thrown right over the back, and the tail and vent feathers spread to nearly their full extent. Then it is rapidly depressed as the effort to rise is made. My tame bird always did this in rising (or rather in attempting to rise, since it had the right primaries removed), and on two occasions wild birds have alighted close to me in an open field, which, after moving a few steps, have thrown up the tail and again taken to flight.

During a period of years when I did much roe-stalking with the rifle, in the summer months, in the Highlands of Scotland, I have disturbed hundreds of woodcocks, and on several occasions when they were squatting beside their young. In no case have I ever seen a woodcock carry, or attempt to carry, its young. Being especially alert as to this point, I have watched woodcock very carefully at close range, and have frequently seen them rise and go through all their usual tricks of the anxious parent. What the woodcock seems to me to do is to rise and fly in a halting and zigzag flight. It utters low croaks and hangs its legs over the much-inflated vent feathers, which to untrained observers may appear to be a young one. The tail itself is broadly spread and held in a forward position, and this heightens the appearance that the bird is carrying something.

I am not one of those observers who, because they have not seen an incident, necessarily disbelieve the observations of other naturalists, and in the case of woodcock carrying their young I have several notes from trained observers who confidently assert that they have seen the circumstance take place. I must, however, assert that even if these birds do perform such an act, it is at all times very rare, and that in most cases the so-called carrying of a young bird has been mistaken for the peculiar way in which the vent feathers are held in movements of fear or alarm on the part of the parent bird.

THE CAPERCAILZIE.—Cover shooting in the Highlands of Scotland has a special attraction, capercailzie being frequently met with. Most sportsmen, at least all I have ever met, enjoy a day's cover shooting where capers constitute a prominent feature in the bag. To kill one flying overhead, and hear it come to the ground with a thud, is somewhat akin to the thrill that excites the sportsman when for the first time he feels the tug of a salmon. Well do I remember my first capercailzie. It was on Torlum, which I was told was the highest hill in Scotland wooded to the summit. With the exception of ptarmigan, every kind of game peculiar to Scotland, from the deer to the snipe, was bagged that day, eight capercailzie falling to my own gun. These birds, it is recorded, are indigenous to Scotland, but at one time became extinct. About a century ago, however, the then Marquis of Breadalbane reintroduced them from Norway into the woods of Taymouth Castle. For some years they were confined almost exclusively to the Breadalbane estates, but they are now to be found scattered over the country as far north as Ross-shire. Their habitat is chiefly pine woods. They are seldom found elsewhere, though they are met with among the birch woods along the sides of Loch Tay. Notwithstanding the heavy, clumsy appearance of this bird, it is surprisingly swift in flight, and much more capable of taking care of itself than most people imagine. These birds should never be shot at except at a short distance, and with heavy shot. From their thick coating of feathers and large bones they rarely drop unless when fired at within a reasonable distance. Hence it is no unusual thing for the keeper, on going his rounds long after the woods have been driven, to find the wasted remains of these birds at a considerable distance from the spot where they had been fired at.

Fierce battles are frequent among capercailzie in the beginning of April. Their habits are not unlike those of black-game, only the cock bird displays his attractions from a tree at break of day. The black-cock at the lek always keeps on the ground. Mr J. G. Millais describes a battle in which four were engaged, and which was witnessed by his keeper. "After skirmishing, striking, and tearing at each other with their bills, the combat developed into a general *mêlée* of utter savagery devoid of skill. One would catch hold of the neck of another and drag it about, shaking with fury." When a fight is witnessed to a finish, "all the combatants are exhausted and incapable of further mischief. On

one occasion after a battle a cock was caught blinded with the blood pouring from its comb over the eyes."

The capercailzie's nest is generally only a hollow scraped at the root of a large tree, and it is not often found in the open. It frequently, though not invariably, covers its eggs on leaving the nest while laying, but very often neglects this most important precaution when leaving to feed after having commenced to sit. Seven or eight large eggs exposed to view very frequently come to grief should the wood contain a pair of magpies or hoodie-crows. Mr Millais records: "I have known of three cases, all in Perthshire, where female capercailzie have made nests in trees ten to fifteen feet above the ground, and have successfully hatched out broods."

Capercailzie are more difficult to hand-rear than grouse or pheasants. If, however, in a district where ant-hills are numerous and a plentiful supply of their eggs can be procured, the difficulty is minimised. While young grouse will live and thrive on pheasant food, capercailzie won't. I have known them started with biscuit meal and eggs, but it was soon noticed they were not thriving, and two of them died. Ants' eggs were procured, and directly they saw them they devoured them greedily. They soon began to thrive, and in a couple of months were fine big birds. They were then fed on broken maize with a mixture of seeds and meat. As they had their freedom, no doubt vegetable matter would be included in their bill of fare. They were fine pets, going into the house to be fed on bread, meat, &c.

After heavy rain, young capers, even when nearly full grown, appear unable to rise when their plumage gets soaked. Once when driving from Pitlochry to Tummel Bridge, a number of these birds, like young turkeys in a draggled condition, ran before the trap for a considerable distance, and when the horse was close upon them they, instead of attempting to fly, ran into Faskally Wood at the side of the road.

When grouse-driving on Auchlecks Moor with a party of Americans, and one of the days being a short one, it was arranged to shoot the big wood in the afternoon. Here the charm of variety gives zest to the sport, for red and roe deer, red and blue hares, rabbits, black-game, pheasants, woodcock, and capercailzie are found there. Some of the party had never shot the last-mentioned before, and were naturally anxious to secure one. Besides roe and a variety of other game, a number of capers were bagged, and one fine old cock shot by



Capercaillie going forward.

the tenant was sent to a taxidermist, in order that it might be set up and exhibited in America as a specimen of a "Scotch grouse." Waiting for the beaters coming on to drive the game forward, I could not help admiring the beauty of the Erochty Valley, and especially the glorious expanse of heather on the opposite side of the river. Soon, however, the scene changed. The beaters were now coming, and game was running and flying forward. Capercaillie flew overhead, in most cases out of shot, but the frequent rattle of the guns, and the thud of the fallen bird on the ground at other stands, indicated that good shooting was being got. A fine old caper cock flew over within twenty yards of where I stood, and as I knocked him down a rustle among some bracken reached my ears. Five roe were passing at a great pace within easy shot, their heads only being seen, and I rolled over the leading buck with my second barrel. When the drive was over, we wended our way homeward, peaceful and content.

After dinner some yarns were indulged in, frequently with a humorous hit at the "canny Scot." Here is one of them. A Yankee and a Scottie were in a room together. The former had a hundred-dollar bill in his pocket, and the latter had the yellow fever. When they came out, "I guess" "Scottie" had the hundred-dollar bill, and the Yankee had the yellow fever. Being a "canny Scot" myself, I retorted, and told of a shooting-lodge in the district which was once tenanted by a party of Americans. A travelling menagerie had lately passed along the road, and a large male gorilla which had died had been thrown into a ditch by the roadside. A number of farmers were returning in the evening from the Pitlochry market, and, as is frequently the case with Highland farmers on such occasions, they were somewhat hilarious. Discovering the body, and being naturally superstitious, they lowered their voices in presence of the dead. At last one of them, bolder than the others, examined the body, and said: "He is too fine a man for a Mackenzie, he is over hairy for a Macdonald, and he is no red enough for a Mactavish. Rory, will you run up to the lodge and see if any of the Yankees are amissing?"

I was recently invited to a couple of days' shooting at Lawers, overlooking the valley of the Earn, about a mile from Comrie, and reached there in due course. The invitation, as I have said, was for a couple of days' shooting—one for a grouse-drive, and the other for a day in the covers. We started early, full of hopeful anticipation of

having a fine day among the grouse. The first drive was at a high altitude, and as we had some time to wait, despite the extreme cold, I leant against the butt and surveyed my surroundings.

Noting an intense darkness, I looked round, and at once saw we were in for a serious storm. Suddenly there came a new and fearful stillness, and equally as sudden the wind rose with a violent howling, and before even the beaters got near the storm was upon us, and their difficulties were great in walking against the blizzard. The drive was futile, as birds would not face the wind, and flew no one could see where amidst the densely-falling snow. We waited for a time, but as the storm looked like lasting, we wended our way homewards.

Better weather prevailed next day, and, as arranged, we shot the covers. No pheasants had been reared, and consequently a large bag was not expected. The wildness, however, both in the landscape and the game, constitutes half the charm of shooting, along with an entire absence of traces of anything hand-reared, which in a measure detracts from the dignity and pleasure of the true sportsman. Then there is the charm of variety, as the sportsman never knows at what his next shot may be directed. It may be a roe, a hare, or a rabbit, a woodcock, a pheasant, a blackcock, or a capercailzie.

Lawers is one of those places where capercailzie are found in considerable numbers, and where they bulk very conspicuously in the bag. As is the case with many other birds, the male is even more on the alert than the female, consequently the larger proportion of those killed are hens. The cocks, being more wide-awake, hide in the tall dark trees which generally constitute their habitat. There is a physiological fact attaching to the history of this species of bird which has puzzled naturalists, and is strikingly at variance with the theory of Combe and other phrenological authorities. From the small brain of the capercailzie one would naturally expect it to be a dull stupid bird, ready to become the prey of every assailant. Certainly this would be the natural deduction from the science of phrenology. The amount of brain in the head of a capercailzie is very small for its size, yet there are few birds more alive to the observance of the law of self-preservation. When overtaken on the ground during a drive, they, as a rule, on hearing the noise made by the beaters, fly on to the trees, from which they are sometimes not easily dislodged, especially if those trees are tall thick spruces. When the wood is larch, and the birds can be seen at a distance, they gener-

ally take care to fly off before any one can get within shot. I believe there are more shots fired at capercailzie for the number killed than at any other kind of game found in cover shooting. This arises from the fact that they are rarely found in the open, and the difficulty in shooting is naturally increased among the trees, while the birds, being large, appear to be nearer than they really are. Of course I do not here overlook their strong feathers and thick plumage, which go far to protect them when fired at from a distance.

There were two crack sportsmen in the party—one from Wales, though not a Welshman, and the other from Dundee—and it was interesting to note the scientific way in which they dropped their birds. In one drive a number of capercailzie came flying over. They passed right over my head, and I confidently anticipated a “right and left.” In this I was disappointed. Though they were both struck, as feathers flew, yet they kept on. I was fairly taken aback at the shock these two birds withstood. Quite a number were flying over at this moment, and I glanced uphill at the next gun. Two capercailzie, by no means close to each other, were approaching our Dundee friend, when bang went his gun, and to one shot down went both birds. Whether it was accidental, or whether he waited till he got the two in line, is a moot question. In shooting ducks rising from a tarn or brook, I have frequently waited till two were in line, securing both with the first barrel and another with the second. Though this may be common enough with ducks, as far as my experience goes it is unique in capercailzie-shooting. Turning round, I observed through a vista among the trees, at a distance of a hundred yards, a large cock approaching. He was not flying high, and, benefiting by my experience of the two birds I had just fired at, I waited till he was within twenty-five yards before pressing the trigger. The shot took effect, and the bird was coming gradually down; but knowing their pedestrian capabilities when on the ground, I let him have the second barrel, which killed him. In the evening I weighed and made post-mortem examinations of some of the birds, and found that cocks averaged a little over nine pounds, their crops containing seven ounces, chiefly acorns and the “needles” of the Scots fir.

THE ROE.—The value of cover shooting to some sportsmen is greatly enhanced where an occasional shot at roe may be anticipated.

Personally, I dislike killing these beautiful creatures with shot, as, if driven past in anything like open ground, the greatest novice with a gun can hardly miss them. It is, however, most enjoyable in the evening or early morning to stroll through a wood where there are open places on which grass grows luxuriantly, and stalk them with a rook rifle. These graceful and timid creatures, in the later months of the year, are usually to be found in large woods—greatly preferring the banks of mountain streams, with rocks, brushwood, and bracken, where they are not likely to be disturbed. When left to themselves, they appear to have a social instinct—it being not unusual to find three and four together, even in districts where they are somewhat rare. When in the centre of a wood with which they are familiar, they seem to cherish a feeling of security, and may frequently be seen quietly feeding, or lying down, or leisurely strolling about, apparently without other aim than the enjoyment of each other's company. I have always regarded roe and squirrels as the two most beautiful and most mischievous creatures in existence. The mischief they do in young plantations is heartbreaking, and there they ought to be ruthlessly destroyed. The late Sir John Ramsden made it a condition in his shooting-leases that roe were to be kept down, and I have taken part in his woods at Alvie in shooting buck, doe, and fawn with shot. I have also engaged in the same slaughter—I cannot call it sport—in the woods of Mr Munro-Ferguson at Novar. They were doing incalculable damage, and that gentleman gave orders for their destruction. It was heartrending to see the beautiful does shot, and, on gralloching them, to find the twin fawns which in a week or two would have seen the light of day. Their destruction, however, was an absolute necessity.

A gentleman having purchased an estate in the island of Jura, and being a thorough sportsman and naturalist, wished to have every kind of game on his property. He appealed to me to get him some roe, so, after corresponding with a number of keepers on estates where these animals are plentiful, I succeeded in having some fawns reared "on the bottle." On being introduced to Jura, it was found within a year or two that the havoc they committed in the young plantations could not be tolerated, and they had to be destroyed.

No genuine sportsman cares to shoot roe with a shot-gun, and, unless where they have to be destroyed for their destructive habits, a rifle only should be used. I can remember a drive for roe in the large



Going forward.

wood at Alvie, already referred to. I was placed where there was a good view of a spot across a glen where there were no trees. Anxious to secure a good head of a roe and a stag, to give to a young lady as a wedding present, I was fortunate in securing both the same day. The two keepers and a gillie beat up the wood, and a roebuck crossed the bare ground quite a hundred and fifty yards across the valley. To hit such a small animal running at that distance seemed highly problematical, but on pressing the trigger he rolled over like a shot rabbit. On going homewards in the afternoon, a stag was observed standing roaring on a skyline between four and five hundred yards distant. He was silhouetted against the sky, above where there were trees, and the light being good, Baxter, the keeper, advised me to try him. I dislike firing long shots at stags, but as there was little chance of stalking him through the wood, and coveting his symmetrical head with ten points, I took the high sight pretty full and fired from the shoulder, when he immediately dropped. Toiling up the steep hill through the thick wood to the spot, we could not find him, and, but for the dog, would have lost him altogether. I had taken the sight rather full, as the bullet caught him on the spine, and an inch higher would have missed. He, however, had crawled down the steep hillside among the trees for a considerable distance. I never see the heads of this stag and roebuck without reflecting on that pleasant day spent in the woods at Alvie.

In warm weather roe frequently leave the woods and betake themselves to the mountains, to—it is generally believed—get rid of flies, which cause them much annoyance. In such circumstances they are a great nuisance to the stalker, as if startled and seen galloping on the mountain-side, a stag at once knows there is danger about and makes off. To stalk a roe in the open as described, and kill him with shot, is far from being a simple job, especially should he be on his feet feeding. So close do they squat in the heather or bracken, that unless they are on their feet it is almost impossible to see them. My first attempt at stalking a roe was high up the mountain-side above Drumouchter Lodge in Inverness-shire, a mile or two beyond the county march with Perthshire. It was almost five o'clock in the morning at the beginning of August, and with his red skin glistening in the morning light he was easily observed. After a great deal of crawling, and wriggling like a serpent, I got within about forty yards, when I took the ball cartridge with which I was loaded from the first barrel, and replaced it with one charged with

No. 5 shot. Raising my head to see if I could get nearer, he got his eyes on me and at once made off. I quickly jumped to my feet, and as he was broadside I let him have both barrels, but he kept on for seventy or eighty yards before he dropped. I subsequently discovered that the ball had missed him, but he was peppered with shot all over the ribs, which proved fatal.

As already said, roe frequently squat among heather and other cover, allowing people to pass quite close to them. When grouse-shooting on Dalnamein Moor in Perthshire, a bird was wounded and fell some distance off. As we were near a favourite spring, the party halted to have lunch, while I went with a brace of pointers to search for the wounded bird. Though the dogs several times ranged to and fro, it was only when one of them would have galloped on to them that three roe jumped up and scampered off uphill. There was a large buck with a fine head, a large barren doe, and a smaller buck, whose antlers were not full grown. As they passed within twenty-five yards I killed the large buck and the doe. Hurriedly loading one barrel only, I again brought the gun to my shoulder. The remaining buck had run to about forty or forty-five yards, when, missing his companions, he turned broadside to look for them. On my firing he ran off uphill, but gradually going slower and slower, he eventually lay down about a quarter of a mile distant. On going up to him it was found he had breathed his last. The party, including two ladies, had seen my performance, and the gillies came to my assistance. The three roe were carried down and spread out with the grouse, black-game, and hares which had been killed in the morning, and which constituted a fine sporting picture. I could not help having some qualms of conscience when I looked on the beautiful creatures I had just deprived of life. The spot, however, was about half-way between a large area which had recently been planted near Dalnamein Lodge, and another near Dalnacardoch, and to have spared them would have been grossly unjust to the Duke of Atholl, who owns the property, and planted and fenced the woods.

When driving woods for roe with the guns placed in the passes, should they hear shots or suspect danger in front they are almost certain to break back through among the drivers. Several instances in the course of my experience have come under my notice of one running against a beater, who secured it. This happened at Tullimet in Perthshire, when one in profusion of cover ran right against the man, who

seized it, and being a doe he managed to hold it, despite its struggles, till he got assistance, when it was secured. Had it been a buck with its pointed antlers it might have been different. Another rather serious case happened when driving the Ledmore Wood at Blair Atholl. The Duke and some friends were stationed in the passes, and several shots were fired when the beaters were about three hundred yards distant. Knowing the danger in front, a roebuck broke back, and my lifelong friend, Willie Macara, being on its "pad," and it not seeing him in the profusion of cover, dashed right in between his legs, which, as he wore the kilt, had little protection. With the force of the impact, one of the antlers went two inches into his left thigh; in point of fact it could not, for the other branch of the antler, get farther in. Willie seized the buck, and a life-and-death struggle took place, it using its hind legs in a dangerous fashion. Getting one leg under his armpit, it ripped jacket and sleeve down to the bottom and to the wrist. It also struck him in many places, the side of his head and ear being severely lacerated. During the struggle he shouted vigorously for assistance, and Peter M'Duff, another keeper, hurried towards him through the thick cover as fast as he was able. Taking in the situation, Peter drew his knife and slashed it across the throat of the buck, severing it to the bone. The antler was drawn out of the wound and the alarm given to the party. Shooting for the day was suspended, and the Duke despatched a messenger to telegraph to Pitlochry for a doctor, and another for a carriage to take the wounded man home. Bleeding profusely from the wounds on the head, he presented a sorry spectacle. The doctor subsequently informed me that it was an exceptionally close shave, as the coating of the main artery was almost cut through. Away in the woods, with no surgical assistance near, nothing would have saved his life had the blood-vessel been severed. Keeping his bed for a week or two, his wounds soon healed, though he had studiously to avoid any violent exertion for a considerable time.

Roe make interesting pets, though a buck, after it attains its formidable antlers, might be dangerous. An amusing and interesting doe was reared by Mr Young, who found it newly born in a rush bush 'mang the "Braes o' Tullimet." Taking it home, he reared it on milk diluted with water, to which he added a little sugar. For a few days it looked a "squeegly" little creature, and it was named "Squeegles." It followed like a dog, and in taking long walks in the wood it often loitered behind

nibbling some sweet blades of grass, or devouring fungus, which to the uninitiated were yellow poisonous-looking ones. In such walks Mr Young would frequently hide among some thick bushes, but in every case "Squeegles" with the aid of her nose found him out.

"Squeegles," like most children, was very fond of bread with jelly on it, and seemed passionately fond of gingerbread. She lay on the rug at the fire like a dog, and slept upstairs in the bedroom, never moving during the night, and had due regard for cleanliness. Directly Mr Young got up in the morning, she seemed delighted and licked his feet. She ran about the kennels, and was quite at home among the pointers and other dogs belonging to the place, but should a strange one appear she bolted into the house and upstairs to the bedroom for safety. She fraternised with a young calf, and the two had great romps together. Care had to be taken when puppies were first let out, as she seemed to dislike them and would have killed them with her fore-hoofs had she been allowed. She soon, however, became reconciled to them. When fifteen months old it was noted she was having stolen interviews with a sweetheart, and eventually eloped with him, remaining away for about a week. She, however, returned, and exactly two years from the time she was found a helpless baby, she produced a young one, but had it securely concealed in the wood. She then stayed for a few days about the kennel, but slipped off occasionally, no doubt to suckle her young, and did not return at night. When the fawn was able to follow her about she remained with it in the wood, though she frequently brought it to the edge of the cover near the kennel, where she left it till she visited her human friends to get some titbits. It is surprising how wild creatures, by a single "cheep," can make their young remain anywhere. This I have observed in the hare, and it may be regarded as an object-lesson to disobedient children.

In the following three years "Squeegles" brought forth twins, and always acted as already described. One day she made it appear manifest to Mr Young that she wanted him to visit her babies. She walked on before him, nodding her head and frequently looking round to see if he was following. She led him direct to the young, and lifting one of them he carried it home, the mother following like a dog. He then had himself photographed with the fawn in his arm and "Squeegles" at his feet. Carrying the beautiful little creature back to its lair and retracing his steps a short distance, he heard "Squeegles" give a cheep, when like



The Love Chase.

two lambs, with which every one is familiar, the little fawns ran to their mother to be suckled. The following evening she appeared at the kennels, and I resolved to follow her and see the fawns. Walking slowly through the wood, she evidently made up her mind she was being followed by an undesirable, and led me here, there, and everywhere but to her young. I, however, persevered till it became so dark that I lost sight of her and had to return discomfited.

Determined not to be defeated, I rose early in the morning and searched about for the trio, but again I was disappointed. Returning a month or two after, I again had an early morning ramble, when I made a special study of the habits of roe and watched them going through their romps. I was this time in luck, and the mystery associated with the "fairy rings" in the woods was seen and explained; and to watch roe indulging in this circus-like performance was highly amusing. "Squeegles" would gallop round and round the ring followed by the fawns, and in a moment would wheel and go in the opposite direction, the young ones kicking up their heels in a most ludicrous fashion. It was while going their fastest that the sudden wheeling took place, and I could not help thinking that there was a motive in their sport, the result of hereditary instinct. To double quickly often saves the life of a hunted animal, as those who have witnessed greyhound-coursing can testify. How often the hound is seen closing on the hare, and when almost mouthing it, "puss" quickly doubles and thereby gains many yards, not unfrequently saving her life. Might not the performance in the "fairy rings" have something to do with this otherwise unintelligible manœuvre?

When "Squeegles" was four years old, and at the time when she had left her fawns to fend for themselves, Mr Young brought home a wife. Like a grown-up daughter when a step-mother is brought into a house, "Squeegles" strongly resented this, and regarded Mrs Young as an intruder, and never became reconciled to her, though she did her best to win the animal's love by dainty bribes. One day she put on one of her husband's caps and was gathering primroses. "Squeegles" arrived on the scene, smelt the cap, and evidently made up her mind she had no business to wear it, and butted her, chasing her into the house. A photographer who set up his camera to expose a plate on her was treated in a similar manner, and was glad to beat a retreat indoors.

In having young for the fifth time, "Squeegles" had only one fawn.

Though she always kept them in the wood near the kennel while they were small, she took them to a larger wood as they grew big, where they could associate with others of their own species. She visited Mr Young every day, staying longer and longer, and in the early spring stayed altogether, leaving her young to fend for themselves. On shooting days "Squeegles" had a leather belt put round her neck, in order that no gunner could make a mistake and shoot her. In the month of April she was observed one morning eating some early grass on which was frosty "rime." The following day she was found dead, and a post-mortem examination revealed that the cause of death was traceable to eating the frosted grass, which proves equally fatal to many roe, hares, and sheep. In the last-mentioned the disease is commonly called "braxy." In her womb were found twins far advanced in development. It was always about the end of August when "Squeegles" disappeared with the male, and this may in some measure clear up the mystery associated with the period of gestation of roe.

THE HARE.—The hare is largely indebted to its sense of hearing and its swiftness for protection against its many enemies. It does not depend on these exclusively, however, seeing it possesses besides an amount of instinct granted to few other animals.

Before settling for the day in the open field, the hare, as a general rule, doubles back upon her own track for a distance of from thirty to sixty yards, and then, immediately before settling down, makes a spring directly to the right or to the left to a distance of six or nine feet. Those who may have the curiosity to track a hare among snow will discover how invariably this device is resorted to, and how well adapted it is to aid "puss" in effecting her escape. She will very generally—unless when rising wild—allow the person or dog to pass on two or three yards beyond the point at which she has doubled, and will often slip off immediately in his rear unperceived, by this means gaining a considerable start, and not infrequently saving her life. It is a most interesting fact in natural history that young hares a few weeks old often display the power of instinct in this particular. I have more than once satisfactorily ascertained this by following the footprints of small leverets after a shower of snow in the month of April.

When hares are being driven there is no scope for the exercise of the instinct referred to, and they can only "lamp" forward before the beaters, if unsuspicious of any danger ahead. Should they hear a shot in front, however, or see the sportsman, they will try to break



Danger ahead.

at the side, and if foiled in that, will not infrequently break back through the line of beaters.

Though it is one of the most common of our wild animals, and well known in all parts of the country, a good deal of popular ignorance prevails regarding many of the habits and peculiarities of the hare.

In this connection several questions of interest to the naturalist suggest themselves :—

First : Do hares pair like rabbits ?

Second : How long is their period of gestation ?

Third : How many do they produce at a litter ?

Fourth : How often do they breed in a year ?

Fifth : Do young hares born early breed the same year ?

Sixth : What is the longevity of hares ?

I am of opinion that by natural law hares pair, and my reason for making this statement is, that where these animals are scarce, they are in the month of February to be found as a rule in pairs, lying in proximity to each other, on ploughed fields, or on rough sheltered grounds. I do not assert that this is their invariable habit, but in places where they are undisturbed, when one is started in the conditions indicated, another may be expected at no great distance. That they pair must therefore appear manifest, but whether they keep faithful to conjugal law is another question.

Secondly, regarding the period of gestation in the hare. In my opinion it is, as in the case of the rabbit, one month, or, more probably, nearer five weeks. I have no reliable data to guide me, but have often dissected hares in the spring, and in open weather have frequently found them gravid by the end of January. As I have noticed young hares in the end of February, and as they are quite common in March, it will be seen that the period of gestation does not, as already indicated, exceed five weeks. I have never kept adult hares in confinement with the view of observing their habits in this respect, which, I think, would be the only way of testing the matter with any degree of certainty. At the same time, I think it dangerous to base any theory on the artificial conditions produced by dissociating animals from their natural environments and placing them in confinement. Nature resents all such interference.

Thirdly, as to the number hares produce at a litter. This is generally two or three, though occasionally one or four. I have heard of five, but this has never come under my observation.

The fourth point, as to how often hares breed in a season, is a much-disputed question, gamekeepers and others who have spent their lives in the country differing widely in opinion. There are, I am persuaded, no certain data to warrant the general application of any

definite theory, many circumstances and conditions falling to be considered which necessarily preclude the operation of any uniform law. For instance, the nature of the climate and the abundance or scarcity of food-supplies have to be taken into account. Then there is the circumstance of "puss" being allowed to luxuriate in conscious security from her enemies, or that of her being subjected to daily disturbance by farmers' colliers or miners' lurchers. Each and all of these exercise an influence in determining the extent to which hares are prolific. It may safely be assumed that the usual and natural time for hares dropping their young is in February and March, the latter month more generally. I have, as already said, seen hares gravid in January, and have found young in one in October. This, however, is no unusual thing in September, a fact which leads me to suggest that, in so far as the sportsman is concerned, hares should not be shot till the commencement of the partridge season. On different occasions I have seen hares killed which were in full flow of milk, and wet round the teats, indicating they were nursing, and at the same time on dissection I found them gravid. This forced me to the conclusion that hares, like rabbits and rats, breed very often.

On the point as to how early young hares breed, I cannot say whether or not they have young the same year they are born, but from several points of resemblance between the hare and the rabbit, the chances are that they have.

As to the longevity of hares, one of Cowper's pets met with an accident which proved fatal when he was nine years old; another died when within one month of twelve years. They were both males. The "Epitaph on a Hare" is well known to all lovers of poetry and of pet animals.

Having thus disposed of these physiological questions, I would now briefly advert to a few characteristic traits which I have observed in the hare. Though somewhat unusual, it sometimes happens that in the spring hares are seen engaged in furious combats, like the red-deer which have been immortalised by the genius of Landseer. I was fortunate enough to witness such an encounter, which lasted nearly half an hour. The two rivals stood on their hind legs, and, with wonderful dexterity, hammered each other on the head and breast, and tore off the fur with their fore-feet. So deeply engrossed were they in their conflict that I managed to get within thirty yards of

them unobserved. How long they had already fought I, of course, had no means of knowing; but as they seemed equally matched, I lay down and watched the fray with interest. For a considerable time neither yielded an inch to the other, but they stood, like the "Saxon and the Gael," in deadly strife. Besides their loud and rapid breathing, which I distinctly heard, they emitted a peculiar defiant noise, which I am afraid I am unable adequately to describe. Round and round they went like a couple waltzing, the fore-legs striking downward blows all the time with remarkable rapidity, by which the fur was torn off. Still the fight continued, but I could see their sides heaving and their blows becoming feebler and less desperate. At last one of them, evidently worsted, turned and galloped off, hotly pursued by his antagonist. Within fifty yards, however, they again closed, and the battle went on as before. But this time it was of short duration, as, unfortunately, the barking of a shepherd's dog, gathering the sheep in the field, caused them to scamper off into a young wood, where, I have no doubt, the battle would be decided. I hurried to the place where they disappeared, got up into a tree, but was disappointed in not seeing the end of this most interesting incident in natural history.

I have often seen hares fighting, but this was the most determined battle I ever saw.

Instances are recorded of deer, and even of the fox, with all his wariness, being caught napping; and it is perhaps worthy of note that I have seen a hare sound asleep. Forming one of a shooting-party some years ago in Berwickshire, we were beating a grass field when I spied a hare in her form. Telling the sportsman next to me to be ready, I walked close up to "puss," when, to my surprise, I observed her eyes were closed and that she was evidently in an unconscious snooze. I called out to the others, "Here is a hare sleeping!" The sound of my voice in such close proximity caused her to awake, and, giving a wild stare, she bounded off. Some time after I picked up a young mountain hare on the moor, and fetching it home kept it in a large bottomless cage on a plot of grass in my garden opposite my window, shifting the cage on to fresh grass every day. I noted it slept with its eyes shut, though they did not appear to be altogether closed. This does not agree with the general opinion that hares sleep with their eyes open. On the approach of winter the hare was fed on cabbage, turnip, &c. When it began to change its colour, facilities were afforded of noting that

the fur was not cast, but that it simply changed from slaty-blue to white.

Hares where numerous are very destructive among turnips, especially in hard weather. They frequently break several before finding one congenial to their taste, and if frost sets in many may be rendered useless.

It is an interesting study to watch the instinct displayed by a hare in selecting a place to form its bed for the day. Near my home there is a grass field with rising ground in the centre, and immediately over the ridge in the lee in windy weather they find a favourite and sheltered resting-place. It is common for both birds and beasts to be found on the lee or sheltered side of the rising ground. On open ground hares invariably squat with their stern to the blast, which, being higher, in a measure protects the head and the greater part of the body. Nature has also made provision in this respect. As every one is aware, the fur from the head slopes backwards, but from the tail over the quarters in the opposite direction, which prevents the wind from blowing into the skin. That hares prefer a dry place to squat in for the day is evident from the fact of their being found high among the bings of burnt shale which are so common in Mid and West Lothian.

Though it is a common sight to see hares feeding, few have had an opportunity of seeing them drinking. Once I was fortunate in this respect when fishing at dusk in Loch Garry. Casting down the side of the loch, I struck the heather on the steep bank behind me and lost the fly. I sat down to put another on the cast, when I noticed two hares, one behind the other, coming down the hill towards where I sat. Keeping perfectly still, I watched their movements, and was not a little surprised to see them go close to the edge of the loch—one of them on to a large flat stone bleached white by the sun and the action of the water—and commence to drink. I could not, however, make out whether they sucked in the water or lapped with their tongue like a dog. After assuaging their thirst, they went off uphill, and were lost sight of in the increasing darkness.

In constant danger from numerous enemies, the hare is well endowed by nature with the means of self-preservation. Her senses of seeing, hearing, and smelling are all extremely acute in an equal degree. In this hares are unlike most other animals, which are dependent chiefly for protection upon one or other of the senses, as in the case of red-deer,

with its marvellous power of detecting the presence of an enemy, sometimes nearly a mile distant, by its sense of smell alone. I do not mean to assert that deer do not quickly both see and hear, especially the latter; but, as is well known, they trust much more to their sense of smell for protection. Hares are also, though in a more limited degree, dependent on their nasal organ. More than once, when sitting quietly under a hedge on a moonlight night, I have seen them feeding, and directly one got to leeward of where I was, she would sit up for a second and then scamper off. None knows this better than poachers, who, when hanging nets on gates, always take care to keep to the lee side. The keen scent of hares is also shown by the way in which one follows the track of another, sometimes after an hour has intervened.

That hares are quick-sighted may be inferred from the fact that when one is discovered lying on a field—it may be hundreds of yards off—directly any person goes over the fence, or even stops opposite it on the road, she will at once squat closer. The quick sense of hearing in the hare is noticeable when being driven out of a wood where they had shortly before been disturbed, and where they may be seen stealing away at the other end, sometimes half a mile ahead.

Hares trust a great deal to being passed unnoticed, and will sometimes allow people almost to trample on them before making off. I have seen one killed by a horse when cantering across a field. When one is squatted in a field and the observer goes straight towards where she is concealed, she will very frequently rise out of shot. Human intelligence, however, is superior to animal instinct, and when one is seen in its form, the sportsman, by circling round as if going to pass her, will generally get within easy range.

The peculiarity by which the hare frequently makes good her escape by doubling back on her tracks, and thus throwing dogs off the scent, has been already referred to. In my boyhood I was frequently surprised at seeing harriers and beagles in “full cry” on a burning scent, when all at once the “music” would cease, and the sport was brought to an abrupt termination. The mystery, however, was one day unexpectedly solved. The beagles were out, and hares being plentiful, they were very soon in “full cry.” I climbed a tree in order to have a good view of the chase. It was not very long before I descried a hare, a long distance in advance of its pursuers, coming near to where I was concealed. “Puss” galloped up the centre of a field, then suddenly

stopped, sat up, and for a second listened with pricked ears. Instantly she wheeled round and galloped back for about a hundred yards exactly where she had come up, then struck off at right angles down wind, and speedily disappeared from view. I then turned my attention to the pursuers, who were fast approaching, and wondered if they would discover the manœuvre or follow up to where the hare had doubled. I was not kept long in suspense, for the beagles came through a hedge and soon got on the double scent, giving tongue as if vying with each other which would be the loudest. A number of ladies and gentlemen came galloping up, evidently enjoying the sport. In an instant the "music" ceased, horses were suddenly pulled up, and disorder and disappointment ensued. I am now ashamed to confess that I betrayed the secret of poor "puss," which conscience told me should have been kept sacred. Again the pursuers were "full cry" on the trail, and taking advantage of some elevated ground I watched the remainder of the hunt. Several checks were made, and the beagles seemed baffled; but unfortunately for the hare, some of the "field," or an onlooker, would yell out a "tally-ho," and the chase continued. The instinct and cunning displayed by "puss" were therefore of no avail, and now, struggling up the furrow of a ploughed field, the pursuers from "scent to view" speedily terminate the chase and tear their victim to pieces. They then make a savoury meal of her remains, as the reward of their persistent pursuit.

Hares frequently display a considerable amount of sagacity in eluding their enemies which cannot be characterised as hereditary instinct. An illustration of this once came under my notice. Walking on the road, and when crossing a bridge over the railway, I observed a hare pursued by a lurcher dog. From my elevated position on the bridge I watched the chase. Pursuer and pursued seemed equally matched in speed, though seventy or eighty yards intervened between them. As they neared the railway a train was coming snorting up the incline, and the hare, dashing through the wire fence, crossed the line a few yards in front of the engine. Reaching the fence, the dog stood nonplussed; but when the train passed it kept earnestly watching the field on the opposite side of the railway. It was here the sagacity of the hare became apparent. Instead of crossing, and thus exposing herself to the view of the dog, "puss" ran up the line close to the engine. Being uphill the train was not going fast, so that the hare had not to run at her full speed. As she passed below the bridge on which I stood I had

an admirable opportunity of observing her galloping about five yards in front, and at the left side of the engine. The train was quickly acquiring speed, but "puss" kept a uniform distance in advance for several hundred yards, when she left the railway and took shelter in a neighbouring nursery.

Hares display great courage when travelling in dangerous places. Some years ago a friend and I were walking on the Smeaton road near Dalkeith, and when opposite the viaduct which carries the Ormiston railway across the valley of the Esk we observed a hare cross the valley on the viaduct, its path being the narrow ledge formed by the projecting ends of the beams on which the road bed is laid. This ledge, wholly unprotected on its outer edge, is eight inches wide, and this is contracted to $5\frac{1}{2}$ inches at every interval of six feet by the iron pillars which support the hand-rail. The length of the bridge is 244 yards, and its height about 70 feet above the stream. We watched the progress of the animal with sympathetic interest, fearful lest it should encounter a train, a person, or a dog, which would probably have proved fatal to it. The hare seemed to be crossing deliberately, and not as the result of a scare of any kind.

When taking a walk one evening my attention was attracted by the peculiar movements of a hare under a spreading plane-tree in a park. As the grass under trees is more rank than in the open fields, and therefore, as is well known, not so congenial to the taste of sheep, and avoided by them, it was difficult to say what caused the strange conduct of the hare in turning from the one side to the other. I endeavoured to get closer, but she observed my approach, and at once scampered off. Prompted by curiosity, I crossed the fence, went to the spot, and discovered four newly-born leverets in a depression among the grass. The tiny creatures were closely cuddled together in their "form," and their bright little eyes made them look exceptionally pretty. It is somewhat strange that while rabbits, rats, cats, puppies, &c., are born blind, and many days intervene before they can see, hares are born with their eyes open. Reflecting on the poet Cowper and his pet hares, my first impulse was to take one home and nurse it "on the bottle." Better feelings prevailed, however, and as four in a litter is somewhat uncommon, I left them in the "form," with the view of carefully observing them in their babyhood. Visiting them a few nights later, I was disappointed to find only one; but on looking around perceived the others squatted within a

radius of a few yards. Each day they removed a little wider apart, which at first surprised me; but here the wisdom of the Great Designer was evident in implanting this instinct within these lowly creatures. The field was heavily stocked with large half-bred Cheviot and Leicester sheep, and the danger of being trodden on was necessarily great. Had the four remained in one nest they might all have been trampled to death by a sheep placing its foot in the midst of them. The chances of such a catastrophe were therefore largely minimised by their settling at a distance from each other. The rapidity of their growth was marvellous, and the activity they displayed when between a week and ten days old was interesting to observe. While watching for the mother coming to suckle them, I was somewhat handicapped by the long grass, the shade of the tree, and the failing daylight in the dull and wet weather, nine o'clock being about the usual time for the mother's arrival. Procuring a pair of binoculars, and accompanied by a friend, I visited them when eight or nine days old. I searched for some time in vain, but was at last rewarded by finding one closely squatted among the grass at some distance from where they were originally deposited. Lifting it to show to my friend, who had not crossed the fence, its rapid growth in such a short time, as already said, surprised me much. I placed it in its "form" again, and kept my hands over it for a few seconds, but immediately I stood up it bolted across the field at a pace that could scarcely be credited. Not being able to find any of the others, I regretted having lifted it, lest it should be the sole survivor of the litter, and possibly never find its mother. Searching the field with the binoculars, I failed to see any of the leverets, but observed an old hare lying about a hundred yards distant. Whether it was the mother of the leverets, it was, of course, impossible to say, but in all probability it was, as, guided by maternal affection, she would naturally be keeping her eyes on the place where her offspring were concealed. For a long time she never moved, but at last came a little nearer, and again sat down. She was not more than fifty yards distant, so that with the aid of the glasses I could see her distinctly. Sitting up on end, and looking in my direction with her ears flat on her back, gave her a comical appearance, somewhat resembling the head of a seal peering out of the water. At times she would nibble at the seed on the tall stalks of grass, lick her fore-feet with her tongue, scratch her body with her hind foot, and indulge in various manoeuvres. It was now raining heavily, and the slowness of her motions became

tiresome and tantalising. At last she moved, but not in the expected direction, and I began to fear that she was not the mother after all. Then she stopped once more, as if listening, with her ears erect, and again commenced to nibble at some grass. By this time it was nearing nine o'clock, and I was delighted to see the little leveret that ran away a couple of hours before hurrying back at the same pace with which it had scuttled off, and on the same track. It came straight to where I had lifted it, when it disappeared among the grass, having evidently squatted in its lair. Turning to look at the mother, I saw she had now advanced considerably nearer, and all at once she seemed to make up her mind that it was nursing time, as she came right underneath the tree. Whether she uttered any cry to attract her babies I am unable to say, but the chances are that she did. The young one immediately ran to her; but, being behind the trunk of the tree, they were out of sight. Presently she went forward, with the young one at her heels, for twenty yards or so, when the other three made their appearance from different points of the compass. She then sat down on her hind legs, but with her fore-legs straight, so that the leverets were all beneath her, satisfying the cravings of nature. I had previously seen young hares in the act of being suckled, but not having had glasses on these occasions, I had not been able to observe them so closely as I did now.

The nursing of the young hares had continued for a minute or so, when an old cock pheasant came strutting across the field, making for its roosting-place, a clump of hollies. When he arrived within twenty yards of the nursing operation, "puss" evidently thought him an intruder, as she bounded forward several yards; but concluding that the bird had no hostile intention, she again sat down and allowed the leverets to finish their repast. Hares, however, are very jealous of any bird intruder, probably knowing only too well the predatory habits of magpies, owls, and carrion-crows. An illustration of this was seen by a party near Marchmont Station, in Berwickshire. The gamekeeper, who was present, took note of it and communicated the information to me at the time, giving the names of five persons who observed it. A number of rooks were feeding among the grass of the steep hillside on the Charterhall Estate, opposite Marchmont Station. That a hare had deposited her young there was highly probable, as she was seen coming over the bank, when she suddenly rushed at and caught one of the rooks and shook it as a terrier does a rat. The onlookers at

once went to the spot, and found the rook dead, with a wing and several bones broken.

To return to the nursing operations. Having finished, mother and leverets indulged in a game of romps. One could scarcely conceive that the tiny creatures which lay till lifted by the hand would be so active. To witness the agility they displayed was a sight to be remembered. Presently another old hare appeared upon the scene, and sat down at a distance of thirty or forty yards. The mother soon went off to join him. Before going, however, one could almost fancy her exclaiming, "Now, my little dears, you must go to your beds." The leverets turned from her and separated, but as it was now getting dark I was able only to locate the hiding-place of one. Another, like a disobedient boy, turned and followed the mother for some distance across the field, but it evidently got peremptory orders to return, as I saw it coming quickly back. Alas, for disobedience! A tawny owl, which must have been sitting on a high branch of a sycamore tree almost above my head, swooped down, and clutching its unsuspecting prey, conveyed it to a tree some distance away. The squeaking noise of the little victim as it was carried off was heart-rending in the extreme, and attracted the attention of the parents, who came galloping back in an excited manner, but looked in vain for the little one that uttered the cries of distress. I never shoot owls, as they are interesting birds and special favourites, but it was fortunate for the one in question that it was a pair of binoculars that I had in my hand and not a gun, otherwise the tragic death of the tiny leveret would most certainly have been avenged. Searching beneath the tree the following day, I found the pretty little head of the baby hare, it being characteristic of the owl tribe to decapitate young hares and rabbits before conveying them to the owlets.

Some nights after I again repaired to the spot to watch the nursing operations. As on previous occasions, about nine o'clock the mother hare arrived, but, much to my regret, only two young ones made their appearance. They came simultaneously from different directions, but I did not see them until they got within the field of the binocular, which was at my eyes at the time. After suckling them for a few minutes the mother left and joined her mate, who waited at a distance. The leverets ran off in different directions, concealing themselves ultimately among the grass. I never saw them again, so whether they

grew to adult hares or not must remain a mystery. When several weeks old young hares may be seen in the gloaming romping and feeding near their mother.

The fact of a mate coming with the mother and remaining near while she is suckling the young, and the two then scampering off together, coupled with the fact that they both galloped about in an excited manner when they heard the plaintive half-squeaking, half-squealing cries of distress of the little leveret when in the talons of the owl, strengthens me in my belief that hares pair the same as rabbits.

Many young hares are killed by agricultural implements. Recently I found three, about a week old, crushed flat by a roller in a young grass field.

THE RABBIT.—Rabbits also greatly enhance a day's cover shooting where they are fairly numerous. In certain woods where pheasants are driven slowly forward on their feet to the cover which constitutes the flush from which to drive them back over the guns, it is desirable to have ground game. The slower and more shooting that goes on the better for giving the birds time and causing them to run forward. It was very generally expected in 1880, when the Ground Game Act was passed, that hares and rabbits would soon be exterminated. Such, however, has not been the case; yet somehow or other rabbits are scarcely considered nowadays in cover shooting. It is customary in some places where there is a warren or park set aside for rabbits for the keepers to stop up the burrows, in order that outlying rabbits may be startled within range of the guns. This method adds materially to the bag, and more especially if they have been stinked out for some time previously. Gas tar, by itself or with a little crude carbolic or paraffin put amongst it, is as good as any of the prepared mixtures bolstered up by advertisements and testimonials, to make rabbits lie out, scare foxes from pheasant nests, &c. If some rabbit's paunch and a little of the tar is put into the burrows, it will be found that many will remain outside. Every hole should then be stopped up with a spade, and a little of the mixture sprinkled over them tends to keep bunny out. In stormy weather some of the burrows will be reopened, but perseverance with the stinking compound will have a wonderful effect in causing rabbits to seek shelter and squat outside. Of course every burrow

must be examined on the morning of the shoot, and carefully closed should any be found open.

This method is now very generally in use, and practised with much success. Indeed, a day's rabbit-shooting in open cover, where rabbits are numerous and where they have been stinked out as described, partakes very much of the character of a pheasant-battue where those birds are hand-reared in large numbers. Having frequently been engaged rabbit-shooting in such places, I have found it no unusual thing for a thousand or two to be brought to bag. Having been



Showing a Male meeting a Female.

kept out of their burrows for a week previously and the holes stopped up, they utilised every bit of cover for a hiding-place, and of course great numbers came to grief. Where the cover is rough, as among heather, rushes, &c., rabbits afford "nippy" shooting, and it is surprising the number of cartridges that are required.

In some places rabbits are allowed to feed outside the cover or warren in a field prepared for the purpose prior to the shoot. After they have become accustomed to go out without dread of danger a wire is drawn and net-wire is allowed to drop, which keeps them outside

to be shot next day. There are, of course, other methods of shutting them out, but the principle is the same. In some places in England, three, four, and even upwards of five thousand rabbits have in this manner been bagged in one day.

It is desirable on sporting estates where suitable rough ground exists that there should be a warren. I have often thought, when fishing on the Spey, that where there are bends on the river a warren could be made at little expense, as the rapid stream would constitute three-fourths of the boundary. Not only so, but the number of rabbits scuttling about indicated a congenial resort. It is surprising how often warrens fall into disuse, even though they were regarded as a great success at first. The reason of this is obvious. Assuming that a thousand couples of rabbits are taken off a warren in a season, that is five thousand pounds of flesh and bones. According to the most elementary principles of farming this cannot go on, and it appears to be a violation of a natural law, as the pasture becomes exhausted and incapable of producing a sufficiency of food. A heavy toll is thus taken of the fertility of the soil, and without putting back an equivalent in the shape of manure, failure and disaster are sooner or later certain to ensue.

Beyond all question rabbits will live and thrive on the same ground as long as a plentiful supply of food is provided for them. How, then, is this to be accomplished? Simply by farming the warren in accordance with the rules of common-sense. Mr Simpson records his experiments in regard to a rabbit-warren conducted on the estate of the Earl of Wharnccliffe at Wortley Hall, near Sheffield, under his supervision and management. He says: "What the rabbit-warren farmer needs to realise is that the flesh, bones, and blood of a rabbit consist of from 55 to 60 per cent of phosphate of lime; that the pasture on which it feeds consists in large part of the same elements; that the rabbit gets its nourishment, &c., out of the *grass* that it eats; that the grass gets the phosphates out of the soil; and that when the soil becomes exhausted of these both pasture and rabbits must of course perish." To my mind a dressing of bone-meal would have a salutary effect, but Mr Simpson's experiments demonstrate a much more economical plan—viz., dressing with gas-lime in November and salt in April. The former can be got for a trifle wherever there are gas-works. It is not necessary that the entire warren be treated annually, but certainly a portion should be done every year. Patches should be

fenced in with net-wire and manured, as by this means the manager of the warren would always be in a position to guarantee a sufficiency of food. Should, with genial weather, grass grow in too great profusion, there are few estates where additional rabbits could not be procured in order to turn them inside the warren. Should bracken be in the warren so much the better, as it constitutes excellent cover; and not only so, but if parts are cut over, it will be found that fine grass will make its appearance.

Rabbits breed much more early with a southern exposure. I can remember in my young days when trapping rabbits that young ones a considerable size were running about on the sunny sandy banks of the Tweed before even those in a back-lying fox-cover with clayey soil commenced to breed. It is not the intention here to treat of converting land into a warren, but for the guidance of any one wishing to do so, I would strongly advise him to consult the experiences of Mr Simpson already referred to.¹

There are numerous ways of capturing rabbits, but for clearing them effectively trapping and snaring hold the field. Where burrows exist traps are the more effective, as if properly set in the mouth of the hole there is practically no chance of bunny escaping. It must not, however, be supposed that though the traps should stand for a week and no captures made for some days that the stock has been cleared out. When a rabbit is caught and the trap dragged as far as the chain will permit, others make their escape and may be found squatted in hedgerows, ploughed fields, or rough ground, it may be a mile distant. The difficulty in clearing out rabbits is therefore apparent. In a park where I for long resided, I had every burrow cleared of rabbits, and after being closed for weeks without a mark of one being seen, the natural deduction was that not a rabbit was left. Walking with the proprietor across the park one day, I assured him that rabbits were completely cleared out. The words had scarcely left my lips when up jumped one from a small tuft of grass at our feet, much to the amusement of the laird.

When, say, a hundred rabbits exist, ninety of them may be secured with traps and snares, but no little strategy is required to secure the remaining ten. Snares are very effective on rough ground, as the peg, string, and stick for holding up the wire can be hidden. On bare

¹ 'The Wild Rabbit,' by J. Simpson. Wm. Blackwood & Sons: 1893.

ground the darker the night for snaring the better. When rabbits are numerous on a moor and let to a professional rabbit-catcher, a bargain should be made that every snare should have a knot on it. This is frequently done to avert injury to sheep getting their feet into them. As, however, I have seen grouse, black-game, pheasants, partridges and curlews caught in rabbit-snares among heather, it would hardly be expected that the rabbit-catcher would not put them in his bag. It should also be noted that after a wet night rabbits in knotted snares are found quite lively and shake themselves dry, whereas in snares without knots many of them are dead and soaking wet. Every one of experience knows that game and rabbits after being soaked can never be made to have the same appearance, either for the market or to look at. In the interest of humanity the knotted snare has much to recommend it. To find rabbits dead or dying with their heads swelled from choking must appeal to the sympathies of the most callous. There is, however, a drawback to the knot. Though the victim is held tight, it can breathe freely and is quite fresh and lively on the approach of a man. It therefore happens that fear makes it dash violently for freedom, with the result that the wire frequently breaks and the captive escapes. On the other hand, when caught in a snare without a knot the tightening of the wire practically chokes it, and thus impairs the strength of the victim.

A curious incident in snaring once came under my notice. Having set some rabbit-snares in a field of young grass I repaired early the following morning to look at them, and was surprised to find two hares caught in the same snare. As is well known, snares set for rabbits do not catch hares in the usual way, in consequence of being too low. One of these hares was caught by the fore-leg, and the other—possibly a sympathetic mate—had got the snare twined round both its fore and hind legs. I relieved the latter, and it scampered off, but the other one in its struggles had become so exhausted that I thought it better to kill it. I have on rare occasions caught a hare by the foot, but to get two hares in one rabbit-snare is, in my experience, very exceptional.

CHAPTER X.

MISCELLANEOUS SHOOTING.

THE charm of variety in a bag of game always interests the sportsman. I can remember, after several weeks' continuous grouse-shooting, of a rabbit springing up, and the interest displayed by the sportsman in endeavouring to get a shot at it as it disappeared and reappeared among the heather. A diversity of game which go to make up a mixed bag, when the season is well advanced, presents quite a picture to the eye of the sportsman and naturalist. A chapter devoted to this class of sport seems a necessary sequel to the foregoing pages.

Ducks when young—or “flappers,” as they are called—attract the attention of the sportsman early in August, the legal time for shooting them commencing on the first of the month. As they are excellent eating, a few brace is an acquisition to the larder, it being illegal to shoot any other kind of winged game till the 12th. By this time they have generally found their way from the places where they have been hatched into rivers or lakes, or, when near the coast, into the open sea. From their reluctance to fly at the opening of the season, and their slow awkward movements on the wing, they afford at best but poor sport. In point of fact, old drakes especially are frequently unable to fly at all, this being the season of moulting. It is otherwise when they have reached full maturity, and are found scattered about during the winter months among the bogs and mountain rivulets and tarns to which they invariably resort. A duck and drake rising in such circumstances, at a distance of from twenty to twenty-five yards, are quite a luxury to one who can use the gun. The first barrel is generally levelled at the drake, while the second is reserved for the less attractive duck. When a number of these birds rise from a tarn or brook the skilled sportsman, by

watching his opportunity, sometimes by waiting a second, gets two in line and secures them both with the first barrel and a third with the second. It is surprising how often these birds are missed even by those who are otherwise fair shots. This arises from their being fired at too soon, the shot generally passing underneath them. As ducks frequently rise nearly straight up, it is well, when within distance, to allow them to have reached a given altitude before being shot at. By attention to this rule few ducks need escape, even from an indifferent shot.

Duck-shooting is so varied, differing greatly in different localities, that it is impossible to submit any uniform set of rules for those engaged in its prosecution.

Shooting at the seaside, on lochs, or in large rivers is most attractive, considerable tact being required in order to stalk within range. If there be cover, or if the ground be suitable, ducks are as easily stalked as grouse or rabbits; but on the sea-beach, or level shore of a loch or large river, no little strategy is necessary. Of punt shooting I have had no experience; but besides this class of sport different methods are resorted to in duck-shooting. These are fighting, stalking, and driving. The first mentioned is most popular where wild-bred birds are the objects of pursuit.

Resting all day in the sea or in large lochs, ducks at night repair inland to feed on stubbles, potato-fields, small sheets of water, burns, and marshes: large numbers fly in at night to Duddingston Loch within the municipal boundaries of Edinburgh. There is something most attractive for the duck species in this sheet of water with its fenny margin. There are few places where a finer variety of these birds may be secured. By stalking, driving, and fighting I have there killed large numbers, and no less than nine varieties. There were mallard, teal, tufted, shoveller, golden-eye, widgeon, scaup, pintail, and pochard.

If attention be paid to the barley stubbles where ducks are in the habit of feeding, they as a rule will be found at dusk to fly in one direction from the sea or other resting-place. The direction of the wind should be carefully noted, as they almost invariably fly in against it; should there be cover on the lee side of the field, where the sportsman can conceal himself, he will get shots at them as they fly overhead. The same remark applies to their approaching potato-fields and other feeding-places. Barley-fields in late districts,

even before cut, have very special attractions for ducks. Having once acquired the habit of visiting the nearest barley-fields, where immediately on alighting they are concealed from view, they will persist in returning in the face of circumstances the most adverse, especially should the mother-bird be shot at first. Once when returning from the moor, as it was getting dusk, a brood of nine ducks settled in a small barley-field. Passing down the side of the field, the ducks rose, when I knocked down a pair—fortunately including the old bird. A few nights thereafter the remaining seven rose in similar circumstances, but this time only one was bagged. After this I surmised that they would continue to return. The surmise proved correct, as ever and again they returned to the grain till the last one found its way into the game-bag.

Ducks breed in the hills among heather, in grass, in corn-fields, in scrubby whins, or indeed almost anywhere. For several consecutive years one nested in the cleft of a tree a considerable distance from the ground. I have also known one make its nest in a cavity of an elm-tree fourteen feet from the ground in the policies of Duddingston. How the young got down after they were hatched has been the subject of much discussion and speculation. This, however, was set at rest at The Haining, near Selkirk. A duck there nested in a tree, and one day something was seen falling down. A watch was kept, and one after another came tumbling to the ground. Few young birds are more active than young ducks; they are so light and flexible that they seemed nothing the worse of their fall, and quickly followed the mother-bird to the loch in the park.

The distance newly-hatched wild ducks can travel in a single day is most surprising. At Tullimet, in Perthshire, ducks are daily fed at a pond close to the keeper's house, and this constituted their home and sanctuary. They strayed out long distances to nest, but directly they hatched out their eggs the ducklings were brought to the pond. One which was known by peculiar markings was found sitting on her eggs far out on the moor about a couple of miles away. In passing one day, the keeper noticed she was hatching, and within twenty-four hours she arrived at the pond with her young brood.

Another fact I discovered at Tullimet which surprised me. A duck with a white spot on her neck hatched a brood and brought

them to the pond. After the ducklings were a considerable size, she again nested and brought her second brood. It is not generally known that wild ducks occasionally rear two broods in a season, and I am inclined to think that it is very exceptional. Possibly good feeding may have had something to do with it.

Beyond doubt the mallard and the domestic Rouen drake are descended from one common progenitor. They are exactly the same in every particular except size. Doubtless, through successive generations, good feeding and want of exercise has been the means of the domestic species growing larger. According to the theories of Darwin, domestic ducks have lost the power of their wings through disuse. On the other hand, the wild species have frequently long distances to fly in search of food, and sometimes, in hard weather, great difficulty in obtaining it. During protracted winters I have found them so thin that they were not worth shooting. One thing about ducks has long been a puzzle to me—viz., why the domestic drake should be polygamous and the mallard monogamous.

Notwithstanding their wildness at other times, ducks, when hatching, sit so close as almost to let one trample on them. I have seen one sit so close on her eggs in a field of grass that she was killed by a mowing-machine. When ducks leave the nest to feed, they, like partridges, carefully cover their eggs. They are then joined by their partners, and fly off to some burn or loch to satisfy their hunger.

Though ducks may breed on certain ground, it by no means follows that sport will there be had at them, as, long before the period provided by the Legislature for their protection has terminated, they, as already observed, will frequently have left the breeding-ground and betaken themselves to the sea or to lochs, greatly preferring those surrounded with a profusion of aquatic weeds. In hard weather, when all stagnant water is frozen, they are necessarily compelled to resort to running streams. In such circumstances the sportsman should walk ten or fifteen yards from the side of the burn, and an assistant close by it a considerable distance in the rear, the distance depending on the windings of the stream. By this method the ducks will generally rise within range; whereas, if the sportsman keep by the burn-side, he will rarely get near them. Without an assistant there is but one course to pursue—that is, by



Ducks rising.

keeping out from the stream and looking over the bank occasionally. In this manner, however, I have frequently been baffled, sometimes by their rising at a long distance, and at other times, if among weeds, squatting till I was retiring, when they would rise out of shot in the rear. When the ground is covered with snow they are easily shot in the moonlight, especially if they are between the sportsman and the moon. This, however, they generally contrive to avoid, and more especially when they are startled from a burn. I have occasionally been much interested at the intelligence ducks display by flying in the shade of the bank, conscious that they are less liable to be seen than flying out on the snow in the moonlight. I have often been deprived of a shot in this manner; but if two sportsmen look over into the stream—say fifty yards apart—at the same time, any ducks that are between them have no alternative but to fly out.

The passing of the Ground Game Act in 1880 gave an impetus to the rearing of ducks in order to provide additional sport. Game-farms nowadays make a trade of supplying duck eggs, as well as those of pheasants, and at half the price. The period of incubation is twenty-eight days, and the ducklings are exceedingly active in an incredibly short time. I have seen one sitting on the top of the coop before it had seen the light for twenty-four hours. When hatched they are put out in a coop in the same manner as young pheasants, and are much more easily reared. Biscuit-meals, as supplied for young pheasants, should be used for a few days; but as this is expensive, mixtures of biscuit-dust, potatoes, Indian meal, and other ingredients, constitute excellent feeding for them. If rabbits are plentiful, one or two—depending on the number of ducklings—boiled among the potatoes give a relish to the food. It is best to fence them in with net-wire, otherwise they will stray long distances in search of natural food. They are then, of course, exposed to numerous enemies, such as the gull tribe, the tawny owl, crows, rats, &c. By putting down the paunch of a few rabbits in warm weather, flies are attracted, and I have sat for hours watching the dexterity with which the ducklings captured them. The paunch of rabbits, minced with a sharp knife and squeezed in running water to clean it, makes a splendid admixture, of which they seem specially fond.

It is unnecessary to keep the foster-mothers long beside the ducklings, as they cuddle close together by themselves in the coop. A

keeper who is an early riser is an advantage, as the sooner they are let out the better. Wild ducks are nocturnal in their habits, and that the young should be let out as early as possible must appear manifest. They gather much natural food from the grass on dewy mornings, such as slugs, worms, and other insects.

If a curling-pond or small loch be near, the ducklings when well grown should be conveyed there, and this will constitute their home. By feeding them twice daily on the banks they will soon become accustomed to it. Care must be taken that there are no pike in the loch, otherwise ducklings will disappear. Once when walking by the side of Loch Chon in Perthshire with the keeper, we observed a duck with five young start and swim away across to the other side. The keeper remarked that they would not all get across, and sure enough, before they reached the middle we saw a splash, and a duckling disappeared. I have taken a full-grown water-hen from the stomach of a large pike. Care should also be taken that the evening feed be cleaned up, otherwise rats will be in attendance, and these when full grown are not slow to attack a goodly-sized duck. The water-vole, commonly called the water-rat, burrows in the banks, but it is strictly herbivorous and will do no harm. The keeper, however, should keep a sharp eye on *Mus decumanus*.

After ducks are able to fly they should occasionally be fed in different places at some distance away from the home pond. Care should be taken in selecting such places that when startled they will fly over the heads of the shooters on their way to the sanctuary. Should there be no cover to conceal the guns, butts or shelters should be erected. The intelligent keeper will endeavour when the ground is suitable to have the ducks startled at an altitude so that they must necessarily fly high overhead. To send as few as possible over at once should be studiously considered. I was once invited to a day's cover shooting in Lanarkshire, commencing with a duck-drive. The guns were placed near a ridge on a hillside in a line with the pond which constituted the sanctuary. After placing the guns the keeper went off to join the beaters in "driving the ducks." Soon they began to fly over in ones, twos, and threes, four being the most I saw on the wing at the same time. As fairly "straight powder" was used, a heavy toll was taken off the ducks, as the fusilade was kept up the greater part of half an hour with a heavy bag as the result. It was the first time I had

seen a duck-drive so well managed, and my curiosity was naturally excited. Rising early the following morning I went to see the place the ducks came from over the ridge. The wily keeper had extemporised a net-wire erection in which he had fed them for some time in order to secure them on the morning of the shoot. He then let them out two or three at a time, when they quickly winged their way to their accustomed home over the gunners.

WILD GEESE.—The shyness and vigilance of the wild goose are such that, despite the greatest stealth and caution on the part of those who go in pursuit of this bird, they are in most cases outwitted by these characteristics. Hence the term “a wild-geese chase” is frequently applied to an enterprise which has failed to achieve success. There are many varieties of the wild goose in this country—viz., the pink-footed goose, the brent goose, the spur-winged goose, the barnacle goose, the Canadian goose, the white-fronted goose, the bean goose, the red-breasted goose, the grey-lag goose, and the Egyptian goose, though some of them are only occasional visitants. It is, however, with the pink-footed goose and the grey-lag that I am most familiar. The grey-lag is said to derive its name from its lagging behind, sometimes to the end of April, before migrating northwards to its nesting-place. Great numbers of geese frequently alight on fields of young wheat or grass, or newly-sown oats, sometimes even before the sowers have left. By what mysterious instinct they are guided immediately fields are sown, to places where otherwise they are rarely seen, is a question which has long engaged the attention of naturalists.

Many people have seen a “string” of wild geese flying at a considerable altitude in a manner of flight which might be an object-lesson for a military drill-instructor. Dwellers in the south of Scotland, and more especially in East Lothian, are familiar with the cackle of wild geese, which on attracting attention overhead proclaims the presence of a flock sometimes amounting to a hundred or two. They generally fly in two diagonal lines, headed at the apex of the wedge by one which, as leader, is relieved from time to time, when he retires among the rank and file. The fields constitute their principal feeding-ground during the winter months, and in East Lothian incalculable damage is done to agriculturists by their devouring the young grass or wheat. Those who, after shooting a wild goose, have taken the trouble to dissect it, and

have seen the quantity of young grass or wheat in its crop, must have reflected on the damage done by these birds, considering that hundreds of them may be seen daily on a field which takes their fancy. It is chiefly the pink-footed goose that is seen nowadays in such numbers in East Lothian. Feeding during the day on fields of young grass, young wheat, or rape, they adjourn at night to roost by the sea-shore, or the sandbanks of estuaries and rivers, or in some mountain tarn among moorland solitudes. This is not their invariable habit, as I have startled them from a young grass field on dark nights, and have often heard their cackling when unable to see them. As a rule, however, they come honking inland in the morning, and return again to the sea-shore or other roosting-place for the night.

The estuary of the Tay is a great resort of geese, and large numbers are shot fighting, when it is noticed they are feeding on a particular field. Two friends of mine arranged to have a morning's sport, hearing that geese were daily visiting a field where at the side there was a ditch in which they could crawl up and shoot them as they passed overhead. Unfortunately they had slept rather long, and the huge birds were honking in in relays with the first streak of dawn. As they got near, the entire field seemed alive with geese, and more coming in. Down the ditch they crawled, stopping every now and then when they heard the honking of new-comers in case they should be seen as the birds flew over. Getting within shooting distance, a cautious peep was taken through among some withered grass, when to their surprise three white ones were discerned amid a large flock of grey-lags. Daylight was making things clearer, and as might be expected a white one attracted the aim for the first shot. The other three barrels were discharged, sending volleys of No. 2 shot into the rising mass. Keeping still and loading quickly, some of the geese not having seen the sportsmen came flying right over them, when other three were added to the bag. The white one was a *rara avis*, and can now be seen in South Kensington Museum. Eleven geese were picked up, which constituted a fair morning's sport, though had the gunners been in ambush in time a better bag would have been secured.

Few birds are more wary than wild geese. They never fail to circle several times before settling in a field, and rarely alight near a hedge or any cover which may conceal a foe. Wild-geese shooting is therefore almost confined to fighting, driving, or awaiting in ambush for them

coming to feed or water. Stalking them with a horse is frequently tried, but, in so far as my experience goes, never with success.

The first bird I ever shot on the wing was a wild goose. A "string" of about a hundred settled in a field of newly-sown oats near my home. It was a large field, and the sowers and the harrows had not left, though several hundred yards away. The geese circled several times round before alighting, but seemed instinctively to know that no danger was to be apprehended from the farm-labourers. By crawling up a ditch and peering through the hedge I observed the geese about the centre of the field shovelling up the oats. Six of them stood with heads erect acting the part of sentinels, and after watching for a time, others took their places, and they commenced to feed. As it was impossible to get near them, I retraced my steps to where a man was working on the road. Requesting him to startle them after giving me sufficient time to get round to the other side of the field, I hurried to a spot in a line with the geese and the point where the man was to show himself. In a short time a warning cackle from one of the sentinels reached my ears, and in an instant every head was up watching the direction indicated by the one that gave the alarm. For a second or two they stood motionless, but on the man appearing full in sight they rose in a confused mass, and it was interesting to note the huge birds getting into the lines already described. Passing over my head, I selected one and fired. It at once left the ranks and wheeling round gradually fell till it reached the ground near to where they had been feeding. The second shot took no effect, and I think I must have missed, but as I was very young at the time and the gun a heavy one, it was not to be wondered at. I carried the goose home in triumph and felt very proud of myself. I returned to the field in the afternoon when I observed a goose for a long time flying round and round, cackling loudly, no doubt searching for its lost mate. It is asserted they pair for life, but for this I cannot vouch.

In places where geese feed in fields during the day, they, as already said, frequently retire at night to some loch or tarn among mountains or moorland. In such circumstances, I have concealed myself among the rushes and sedges invariably found on the margins of such lochans. On the eastern slopes of the Lammermoors such tarns which constitute the haunts of geese are to be found. Within half a mile of each other, two are situated on a large estate whose proprietor was interested in sport.

With great courtesy this gentleman granted me permission to pursue my quest, and I set forth, reaching the starting-point at a station on the Berwickshire branch railway. The geese, I was told, would not come in till after six o'clock in the evening. Time was therefore allowed to pass before proceeding to the moor, lest I should arrive too early upon the scene. A long walk through heather on uneven ground in the dark was by no means pleasant; the distant cackling of geese, however, added some interest, if not excitement, to it. Creeping up close to the edge of the tarn and peering through rank vegetation, I saw what appeared to me at first sight to be tufts of rushes in the water, but which gradually disappeared and turned out to be the birds I was in search of. Presently the cackling of geese corroborated this opinion. They had evidently discovered danger, and would naturally be more watchful. The only chance, therefore, was to have them driven, which the keeper prepared to go round and do. Before he accomplished his mission, however, a hundred wings lashed the water as they rose and took their flight, with much clangorous cackling, pitched in many different keys, thus eluding my range of shot. In the expectation that others would come, I ensconced myself in a hut of rushes within thirty or forty yards from the spot where the geese got up. With the wind blowing from the north-west, I knew from experience it was on my side of the tarn that the birds would take shelter. With the wind in the opposite direction, they would rest in the shelter at the other side, thus indicating that even wild geese share this comfort-seeking instinct with other creatures in nature. The sensation of sitting cramped up in a rush hut, with one's boots sinking in several inches of water, was not exactly pleasant, yet to be out amid barren waste-lands in the silence of the night had an impressiveness of its own. The moon was past its first quarter, and it was not therefore very dark. No sounds were to be heard but cries of the denizens of the moor and marsh. With the proprietor of the estate a master of hounds, foxes were there strictly protected, and their bark, which at that love-making season can only be characterised as a screaming wail, frequently broke the stillness of the night. In the distance could be heard the cackling of geese, as the birds apparently were winging their way to the other loch. Added to these sounds came occasionally the loud quack of the mallard, the low discordant note of the teal, the peculiar whistle of the widgeon, and the continuous screaming of gulls, while the noise from the coots and water-

hens swelled the general chorus. The wild scream of a curlew, possibly disturbed from his heathy roosting-place by a fox, was also distinctly heard. While I sat listening to the wild medley, the cackle of geese in close proximity caused me to seize my gun and strain my eyes in the darkness. Presently three geese came over towards me, and one of them being, as I thought, within shot, I brought the gun to my shoulder and pressed the trigger. I could see the huge bird, but my back being towards the moon, I could not be certain whether it was within range or not. The peculiar noise made by its wings after the shot made it evident that it had not escaped injury, but it did not fall to the gun. I waited on expectantly for another hour, but no more geese having then appeared, I wended my way back to the keeper's house, obliged to admit perforce that I had been the victim of "a wild-goose chase."

Next morning, with the view of ascertaining the lie of the ground in the event of any subsequent visit to it in the dark, I started with the keeper for an examination in daylight. We walked round the loch and inspected it minutely. I observed the feathers of ducks, gulls, and other water-fowl, with the feet, wings, and heads of some also lying strewn around, their flesh having been devoured by foxes. A mere or loch, as is well known, constitutes the happy hunting-ground of foxes; as, when covered with ice, they seem instinctively to know that water-fowl, such as coots and water-hens, then become an easy prey. Even ducks, gulls, and herons are unable to protect themselves from the stealthy approaches of the fox, as was evident in this case from the remains of these birds lying by the loch-side. Here I discovered that gulls are not congenial to the taste of Reynard, as only their heads and feet were devoured and their bodies untouched. We walked round the larger loch also, as on the previous night we had observed the goose which was shot at fly towards it. While going along one side we noticed on the opposite bank one of the birds in question running from the lake to conceal itself among the heather. It is a singular trait with both ducks and geese that, when left wounded in a loch, they frequently leave the water and try to conceal themselves among the heather. This led me to the conclusion that the bird was probably the goose wounded on the previous night, and believing that its hiding-place was discovered it would make for the water, we hurried towards the spot where it was first observed. I kept walking near the side of the loch, the keeper a hundred yards or so into the heather to get leeward of the bird, with the view of the dog

getting the wind to scent it. Crossing the trail, the dog put down his nose and followed right out on to the moor. The dexterity with which the goose had used its legs was surprising, as was seen in the long distance it had run. The scent of geese must be very strong, as the dog in pursuit tracked him quickly, and before the keeper could get near the goose took flight. I saw the feathers fly from the shot, but the goose gradually rose into the air and winged its way out of sight.

With that perseverance characteristic of sportsmen, I arranged to return the following week when the moon would be full in order to endeavour to accomplish my purpose. I reached the lochan an hour before dark, and was disappointed to notice a flock of geese rise on my approach. Hoping that they might return, I concealed myself in the rush hut. Shortly after dark something gave a heavy splash in the water, difficult to explain, since geese generally, though not invariably, give warning by cackling. Peering through a port-hole in the rush hut, I could see a goose on the water within twenty yards. To have shot him would have been a simple matter. I did not care, however, to resort to such an unsportsmanlike proceeding. Springing to my feet, the bird was on the wing in an instant, and was at once lost sight of against a bank of dark heather. Soon, however, it rose above it, and appeared against the sky, but by this time it was about forty yards distant, and though it did not fall to the shot which I fired, I knew he was badly wounded. By-and-by, after sitting still for some time, distant cackling announced the arrival of a flock of geese, which came flying right overhead and down wind at a great pace. They were right between me and the moon, and I could see them turn and fly straight towards me like a covey of driven grouse. There were about a dozen birds, and they splashed into the water, but out of reach. Although difficult to discern in the darkness, it was an interesting sight to watch them swimming about. Wild geese are credited with having an "extremely acute" sense of smell, but though they were exactly leeward, I could see no indication in this case that these birds suspected danger. After waiting until I thought them sufficiently near to be within shot, I at once stood up to fire, and in an instant they were on the wing. The first one which was between me and the water on which the moon was shining dropped to the shot; but before I could use the other barrel the birds were in front of the heather, and could not again be seen till they rose against the sky, which was a long shot.

Firing again, no bird was seen to fall, but, watching the flock against the moon as they flew on, one of them suddenly dropped to earth. By a tree on the horizon, I was able to locate the direction. With the aid of the dog, which swam in for the one killed with the first barrel, I had no difficulty in picking it up. Following the line of flight taken by the first bird, I was fortunate in finding it also. Tramping home this time, I felt considerable satisfaction in realising that while I had been engaged in a chase after wild geese, it had not proved altogether, as did my former similar experience, "a wild-geese chase."

On another occasion I repaired to this lochan in the afternoon, as geese had been seen on it during the day. For a couple of hours none made their appearance, and I became absorbed reflecting on other matters. My reverie was quickly broken by the whistling of wings, and on turning my head a couple of barnacle geese were quite within gunshot. As I was sitting very low, I fired and dropped one, but could not get the gun far enough round to secure the other, which would have been a simple matter had I been on my feet.

Darkness was now setting in, and presently about twenty geese came flying over. They were, however, rather high, and I failed to bring one down. Soon another skein came over, and this time one fell with a broken wing. In a few minutes a large number came, when between the keeper and I two splashed down dead into the water. The moon was full, but dark clouds obscured its light. Geese came flying in, and the keeper and I fired a number of shots with fair success. At last they ceased to come near, though we heard them flying about with honking clamour as if a pack of beagles were hunting overhead.

Shouting to the keeper that I thought he should go to the large loch and startle any that might be there, he went off on this mission. It was a fine evening with a bit of a breeze which caused a ripple on the water. The keeper evidently startled everything from the large loch, as hundreds of large birds came flying near me with much screaming and clamour. Unfortunately at this time the moon was hidden by a dense dark cloud which, being unable to judge distances, rendered shooting very difficult. I could see large birds above me when I fired both barrels, loaded and fired again and again, making, I fear, many misses, though sometimes hearing the splash as one fell into the water. As may be expected, neither geese nor gulls would stand the fusilade for long, and the cackle of the one and screaming of the other suddenly



Wild Geese settling in Tarn.

ceased as they took their departure to some more congenial resting-place. On the keeper returning with his retriever and picking up the spoil, it was found that large black-backed gulls had suffered in common with geese. The dead ones that fell in the water drifted to the opposite side, and we started to pick them up. While engaged doing this, the winged one first brought down had left the fenny margin of the loch and took "leg bail" across the moor. The dog, getting on the trail, went off at a gallop. We could hear the fight, as geese die game and strike powerful blows with their wings, though the bird in question had only one wing it could strike with. The dog, however, returned with it still alive, though its skin was much torn in the struggle. Hunting the dog round and round the loch we managed to pick up nine geese and two ducks. They (the geese) were all the pink-footed species with the exception of the barnacle, and they constituted a very decent bag to carry home.

The late Duke of Argyll, when Marquis of Lorne, brought a number of wild geese from Canada, which were turned down at Inveraray, where they were daily fed. When the breeding season came round they took to the moors, and their nests were found many miles from home. Sometimes their eggs were taken and hatched under hens. When hatched out on the hills, the mother bird in a surprisingly short time brought the goslings home, taking advantage of the chain of lochs leading to the Aray river. This was noticed by the keeper when fishing with gentlemen on the lochs.

In some parts of South Wales excellent sport is frequently got at wild geese. At Morgan Park there are miles of marsh, meadow, and rough ground interspersed with wide open ditches and small lochans, where flocks of all sorts of wild-fowl congregate. Hay is cut and stacked all over the place where the land is sufficiently dry for grass to grow. When geese-shooting, the *modus operandi* is for the guns to conceal themselves as much as possible beside the hay-stacks. Beaters are employed to go round, it may be for miles, to startle the geese, when they fly in "strings" to other parts. With ordinary luck a good many shots are got, and a wild stormy day is conducive to success. The late Mr Fletcher of Saltoun once told me of a "red-letter day" he had in a blinding snowstorm, when he bagged no fewer than thirty-two geese, besides losing a number which flew on a little and fell in ditches or among snow, and could not be picked up.

When on a visit to the Outer Hebrides, I was much interested in the variety of wild geese that frequent South Uist. There are the grey-lag goose, the white-fronted goose, the bean goose, the Canadian goose, the barnacle goose, and the brent goose. What struck me as remarkable was the absence of the pink-footed species which are seen in such numbers in East Lothian and the north of Berwickshire. When it is taken into consideration that about eight hundred geese, and nearly as many duck and snipe, are killed in a season, besides woodcock, grouse, and other game, South Uist must be regarded as a sportsman's paradise. Grogary Lodge is ornamented with stuffed specimens of all birds shot in the district.

GOLDEN PLOVER are not always classified with game, but there are some who place them in that category. The golden plover is met with both in the Highlands and Lowlands of Scotland. Breeding in high altitudes, the old birds may be seen early in the season flying from hillock to hillock almost within shot, with the view of decoying the intruder away from their young. During the spring and summer months the plover, with its lonely wail, will often be found amid the barren moorland wastes which frequently constitute their breeding haunts.

On the tablelands at the summit of some of the higher ridges of the Grampians, their predilection for such resorts is conspicuous, while the mournful note of the bird seems to add to the desolation. Yet—

“A charm is in the plover's wail,
And in the curlew's wavering call.”

Numbers are often killed by sportsmen when ptarmigan-shooting, and from their habit of flying in large flocks, several are frequently killed at one shot. Forming one of a party out after ptarmigan and hares, on the mountain-tops which overshadow Loch Garry in Perthshire, a large flock of plover whisked past, when, by firing both barrels in their midst, nine birds were picked up. It was somewhat unsportsman-like, but at the swift pace they fly at it is almost impossible to select a bird. After the young are fully fledged and on the first indications of winter, they repair to the low country, where they may be seen in large flocks along with lapwings, in turnip, grass, and other fields, but greatly preferring those which have been recently ploughed and harrowed, where

they more readily secure the worms and insects on which they subsist. They have a preference for fields which are damp, and where the grass is short and thin, and become attached to certain localities. In high winds large numbers are killed by driving them from one field to another. This mode, however, is not always successful, as golden plover—especially when among lapwings—frequently circle high in the air, and keep out of shot, unless when about to alight. In hard frost or snowstorms they repair to the coast, feeding upon the insects left by the receding tide. They are exceedingly good eating, and are sold in numbers for the table. The plover is one of the most harmless of birds, and is a general favourite with all lovers of the country.

LAPWINGS attract little interest among sportsmen, and while they may be shot in large numbers, are not regarded as a delicacy. This is somewhat remarkable, as they subsist on exactly the same food as golden plover. It is otherwise with their eggs, which are gathered in great numbers, and sold at high prices. It is most interesting to watch lapwings feeding, picking up worms and slugs off the ground. The bird is very common in all parts of the country, and, except for its eggs being gathered for the market, as already mentioned, is rarely molested. It was otherwise a century ago, when country people expressed great dislike to it, and destroyed it wherever and whenever they had an opportunity. The reason alleged was that this bird, being by instinct led to flit about and scream near any one who obtruded on the solitude of its native wilds, helped to guide the King's troops in their pursuit of the Covenanters holding conventicles among the hills, by its being observed to hover over a particular spot.

Burns referred to the pewit in "Afton Water"—

"Thou green-crested lapwing, thy screaming forbear."

An animated discussion took place in the columns of the 'Scotsman' in regard to the colour of the lapwing's crest, and as to whether Burns was correct in his description. This, of course, depended on whether the hyphen was between green and crested, or between crested and lapwing. The 'Harmsworth Encyclopædia' says, "The upper parts of the body are green, as is also the crest." This is not so. While the discussion was going on, I shot a number of the birds in question and preserved the

heads. Examining them carefully with a microscope, I demonstrated that while the feathers on the head of the bird were a bluish green, those of the crest were black.

The CURLEW, better known among the Scottish peasantry as the "whaup," resembles the golden plover in many of its habits. Few birds are more wary; and from the circumstance of their eyes being near the top of their head, and their legs and neck long, they are most difficult of approach. Even when hatching they are always on the outlook, and will—long before any one gets near—leave the nest and run in a crouching manner for a considerable distance before they take wing. As a rule they make their nests in some remote place far from human haunts. I have found them high up mountain-sides, and in places where the approach of an intruder was certain to be discovered. They have generally four eggs, which are unusually large for the size of the bird. Curlews—especially when young—are good eating, but after feeding for some time at the coast their flesh gets very rank. They generally resort when the tide is full to an unfrequented island to roost, should such be in the vicinity. A friend, a zealous wild-fowler, sailed out from Granton one moonlight night and spent a few hours on Mickery Island in the Firth of Forth. The tide was full at midnight, and after ten o'clock curlews began to come on to the island. Partially concealed among the rocks, the birds could not see the sportsman on the dark ground, whereas he had a good view of them against the sky. Being driven off their feeding-ground by the advancing tide on the flats of Dalmeny and Cramond, they continued coming in till twelve o'clock. How many were killed will never be known, as many fell in the sea and among rocks, where they could not be picked up. Sixteen were, however, gathered, and I believe such a bag of curlews killed in two hours to be unique in this part of the country.

Mickery Island is now one of the fortifications of the Forth, so that wild-fowl must go elsewhere for a roosting-place.

The CORNCRAKE or LANDRAIL, a bird "seldom seen but often heard," is frequently met with when partridge-shooting, especially among second-crop grass or other rough vegetation. By this time most of them have gone, and it is supposed by some that those found in September or October are late young birds, not sufficiently strong on

the wing to migrate with the main flight. They arrive in this country in the end of April in large numbers, every grass-field resounding with their "crake-crake." Notwithstanding their numbers, and their bringing up eight and ten young, it is a singular fact that very little is known of their habits. Assuming that each pair rears eight chicks, and considering that the number shot, or killed by birds or beasts of prey, is fractional, a large number must leave the country compared with what arrives. By September most of them are gone, migrating, it is said, to the south of Europe and the north of Africa. It has been asserted that some of them hibernate in this country during winter. This I have never seen, but learn from those whose veracity I regard as unimpeachable that it is a fact. Whether in such circumstances the water-rail, not very unlike the landrail, has been mistaken for the latter, is of course impossible to say. The water-rail is a winter visitor to this district—at least I have never seen it in summer. The 'Natural History of Orkney' informs us it is there found all the year. It is strange, however, that birds which seem hardly able to fly a few hundred yards should cross the sea; still, true it is that they do cross, instances having been recorded of landrails alighting on the deck of a vessel two hundred miles from land.

Doctors tell us that a change of air is conducive to health, and guided by hereditary instinct the migration of birds may have an effect on their existence irrespective of food supplies. It will naturally be thought that the warmer climes to which landrails migrate would produce more insect life on which these birds subsist than is to be found in this country.

The landrail is an exceptionally good bird for the table, and comes within the scope of the Game Laws. It is almost to be regretted that the greater number take their departure so soon, otherwise it would appear more frequently on the bill of fare of *gourmands*. A curious ventriloquism is frequently resorted to by this bird. Country school-boys must have noted that the "crake-crake" of the bird seems as if one of the "crakes" was much farther away than the other. I once made the discovery of the reason of this. Hearing one calling loudly in a grass field, I stealthily got up a tree, and remaining quiet, shortly after saw the bird. It moved its head from side to side as it called the "crake," so that while the head was towards me, it naturally seemed nearer than when the head was in the opposite direction.

PIGEONS.—Like the lamb, the dove has long been regarded as a religious emblem. "It was a dove, ever sacred to peace, that brought the olive branch to the ark of Noah, for which she has her place among the constellations; and the Christian world still personates the Holy Spirit under the mystic emblem of a dove." Our pigeons, it was at one time asserted, are descended from one common progenitor, namely, the stock-dove, so called because of its being the stock or stem from which the different breeds have been propagated. Others, however, hold that all have their origin in the rock-pigeon. It is difficult to believe, in view of the diversity of the breeds, that either theory can be correct. From the difference in the shape of the cushat, the stock-doves, the pouter, the homer, the tumbler, the jacobine, the fantail, and others, it has been suggested that several species come from different aboriginal stocks, and many treatises in various languages have been published on the subject, some of which are of considerable antiquity. Darwin, in his 'Origin of Species,' however, maintains that "all are descended from the rock-pigeon," and after long and patient experiments he advances arguments in support of his conclusion.

It is not proposed to enter here on this vexed subject of origins, but rather to note some observations regarding the pigeons that frequent our Scottish woods at the present day. Though there are many varieties, the cushat or ring-dove, the stock-dove, and the turtle-dove—the last mentioned being rare in Scotland—are the only ones of which we can boast. Of course there is the rock-dove, but its habitat is not in trees. All dwellers in the country are familiar with cushats "cooing their love songs in the morn." Their well-known plaintive, melancholy note, the soft soothing "coo, coo-coo, coo-coo, coo," associated with the rural grove, and pleasantly suggestive of sylvan peace, delights the ear of the listener. It is one of the shyest of birds, and the great difficulty experienced in getting within shot of it is well known. Despite its being regarded as one of the most watchful and wary of the feathered tribe, it frequently nests in close proximity to human habitations, and sits close, regardless of people passing and repassing within a few feet of it. Years ago, when in London, I was simply astounded to observe a wood-pigeon in Piccadilly, sitting on her nest a few feet above the heads of the many thousands of people who daily pass and repass along the crowded thoroughfares of the

modern Babylon. Getting my eyes on it, I involuntarily exclaimed, "My goodness! Is that a wood-pigeon?" Whether I addressed a passer-by or made the remark to myself it is difficult to say, but a gentleman in an exceedingly gruff tone replied, "I don't know what it is." He never even turned his head, but the manner in which he walked on, shrugging his shoulders, indicated that he suspected me of trying to attract his attention with the view of picking his pocket. Such, at least, was my impression.

When a boy, I remember a pair of wood-pigeons making their nest in a lime-tree within a few yards of a kennel door for several consecutive seasons. Though the nest was within twelve feet from the ground, and part of the kennel immediately beneath it, with men and dogs almost constantly about, yet they flew to and fro without dread of danger. Towards the end of September, when a pair of young ones nearly fledged were in the nest, a violent gale, which almost stripped the tree of leaves, was encountered. On hearing the wind in the early morning, I naturally concluded that the young birds would be blown out of the tree. In this, however, I was mistaken, and was interested in observing the precaution taken by the parents to ensure their safety. During the entire day, while the gale lasted, one of them sat on the leeward side of the nest, and with its breast kept them in their place, while the other faithfully discharged its duty in providing them with food.

Though generally so shy and difficult to approach, wood-pigeons are easily lured to their doom by the use of decoys, so long as the shooter keeps out of sight. Thousands are shot annually by this method—a doom which unfortunately is necessary in consequence of their destructive habits among the crops of agriculturists. With the aid of a few branches to afford a hiding-place behind a hedge, I have killed large numbers by the use of decoys, when they happened to be feeding on a stubble, grass, or turnip field. At each shot every bird save those killed flew off, and sometimes for a minute or two none would be seen. Presently one would fly over at a high altitude, then in gradual lowering circles would settle among the decoys, despite the fact of dead ones lying all around. The lowering circles, I was convinced, were the means of attracting others, as immediately they could be seen coming from all directions and settling in the same manner, till another shot again cleared the field. How vultures discover their prey, whether by

sight or by smell, has long been a controverted point among naturalists. My experience of shooting pigeons with decoys forces me to the conclusion that it is by sight.

It is remarkable how indifferent wood-pigeons are to the report of a gun while feeding in the fields, if the person using it is thoroughly concealed. When shooting at them settling beside a decoy, if not struck, they will sometimes fly off, circle round, and settle down again almost on the identical spot they were shot at. Where they have acquired the habit of feeding in a field, if a few stuffed ones are stuck in the ground as decoys, directly any fly over and perceive them they are almost certain to circle round and settle beside them. I have killed large numbers in this manner, even without the use of stuffed ones, by simply propping up the heads of a few dead ones with pieces of stick, and making them as lifelike as possible. It is a mistake to go out of the ambush to pick them up as they are shot; though a dozen or two of dead ones may be lying about, they do not in the least deter others from alighting.

I have frequently transferred the eggs of the wood-pigeon to the nest of a tame one, and *vice versa*. Though wood-pigeons thus reared in a house may remain tame for a time, they eventually become wild, and almost invariably take to the woods. They may remain over the winter, but I never knew of one that did not betake itself to the woods and mingle with those of its own species on the approach of spring, when they pair off in the prospect of the nesting season.

I put two tame pigeon's eggs into the nest of a wood-pigeon in a tree close to a house. In due course the young birds were hatched and reared, and for a week or ten days after they were able to leave the nest, sat mostly on the roof of the house. It is worthy of note that as the wood-pigeons returned from the fields with food for the young birds, on no occasion did they alight on the house-top, where the young birds sat full in view. They, however, after flying closely past the young pigeons, flew into the tree where the nest was, and were immediately followed by the young birds. This continued till they were sufficiently able to provide for themselves, when, instead of following the old birds to the woods, they preferred the company of domestic pigeons, and, bidding farewell to the tree with its luxuriant foliage, took up their quarters in a dovecot close by.

In no case have I ever found those experiments in natural history

of the character here referred to succeed. So long as external circumstances constrain wild creatures to adapt themselves to their somewhat anomalous position they will submit to it; but no sooner do they become able to provide for themselves than nature will assert itself, and refuse to be governed by artificial expedients.

As already mentioned, I was extremely interested in observing the tameness of wood-pigeons in the streets and parks in London, and to see them feeding with the common pigeons. I was also surprised to hear their well-known cooing in Berkeley Square. Several instances are recorded of hybrids being produced, and in every case that success was attained it was with a female cushat and a male domestic pigeon. Experiments have been tried the reverse way, but every case proved futile. I am not aware if such hybrids could ever propagate their species.

A pair of turtle-doves in a friend's house industriously built a nest in a corner of their cage with small twigs and pieces of cut string, which had been carefully prepared and introduced into the cage. The female on several occasions laid two eggs, and sat upon them until they became addled, when they were ejected from the nest. In every case disappointment was the result, and on my attention being called to the circumstance, I one evening removed one of the eggs from the nest and substituted one of a tame pigeon. In due course a bird was hatched, and so far was successfully reared. As soon, however, as it was able to feed itself, it became a perfect tyrant, and, had it not been removed from the cage, would have killed the gentle doves from which it had received such kindness.

In the following year facilities were again presented to the turtle-doves for building another nest, of which they readily took advantage. Again several eggs were laid and sat upon, with the same fruitless result. On this occasion another experiment was tried by removing one of the eggs and substituting that of a wood-pigeon. In due course a bird was hatched, of which the turtle-doves seemed very fond. After being fed for a couple of weeks, it assumed dimensions out of all proportion to its foster-parents. It seemed to be a perfect glutton, and insisted upon being continuously fed. When nearly a month old, and well fledged, it one day, while being fed, thrust its coarse bill down the throat of the delicate turtle-dove, and thus choked it in the process. No sooner had the dead bird been removed from the cage than the

wood-pigeon insisted upon being fed by the male. For two days it was regularly fed and cared for by the remaining dove, but on the third day it, like its mate, fell a prey to the rapacity of the young wood-pigeon, which had to be destroyed. No act, however, could restore to life those gentle creatures that had suffered from misguided affection in the course of a most unsatisfactory and, I confess, an inconsiderate experiment.

From this instructive incident we learn the folly of practising experiments where the natural instincts of the creatures involved and the law of adaptation are not fully considered.

The stock-dove, though never seen in my younger days, is now plentiful in many parts of Scotland. Brought up on the Borders, I cannot recollect seeing one. Now, however, they are there in great numbers, and increasing, frequently breeding in rabbit-holes. When ferreting rabbits in East Lothian, on the keeper putting a ferret in a burrow, a stock-dove made a hurried exit, and afforded a beautiful shot. Immediately after, the ferret made its appearance with its mouth full of blue feathers.

Mr Muirhead, in the 'Birds of Berwickshire,' records that it made its appearance at Paxton in 1887. In the 'Proceedings of the Royal Physical Society' for 1881-1883, p. 251, it is stated: "This bird does not appear to have been observed in Scotland before 1874 or 1875, when it was seen in Perthshire." It is difficult to reconcile this with the fact of the Rev. F. O. Morris in his 'History of British Birds,' published before these dates, referring to it; further, when we remember that in the beautiful song, "Afton Water," written by Burns in 1789, we find the line—

"Thou stock-dove whose echo resounds through the glen."

On a recent visit to my native place on Tweedside I observed numerous stock-doves where in the days of my youth these birds were unknown. As the river was very low, fishing was out of the question during the day. Arranging with the fisherman to meet me at four o'clock in the morning to have a cast for a salmon, I was there half an hour before the appointed time. It was a glorious summer morning, and as I reflect on it wonder why the Daylight Savings Bill was so long delayed. During my half-hour's wait, the choir of bird-music

delighted my ears. Every warbler in the beautiful wooded policies of Ladykirk seemed bent on pouring forth its sweetest melody, while the plaintive cooing of the wood-pigeon and the loud sharp "coo-oo-oo" of the stock-dove added to the general chorus. On the opposite side of the river there is a perpendicular rock which was resorted to by boys in my school-days to hear the echo, it giving back shout for shout and scream for scream. The echo of the stock-dove's note was here distinctly audible, reminding one of the words just referred to, written by that close observer of nature, our national bard.

THE ROCK-DOVE.—This bird derives its name from its habitat being among rocks. Large numbers frequent the rock-bound coast in most parts of the country. Great numbers breed in the stupendous precipices around some of the islands of the Orcadian archipelago, and as a sporting bird when shooting from a boat it is hard to beat. There are few more enjoyable outings than to sail round a rocky coast in quest of these birds. Care must, however, be taken that the weather has the appearance of being settled, as even on a fine day there may be a ground swell which causes the boat to be far from being steady. With the slightest breeze from seaward towards the coast the roll of the ocean causes it to be anything but pleasant, and sometimes lasts for a day or two even after the wind is perfectly calm. Once, when I enjoyed a pleasant sail round the coast shooting rock-pigeon, I was baffled from going again as a serious storm had set in. I, however, took a walk round the top of the cliffs, some of which went down with sheer descent into the sea. The tide was coming in with a fury deafening to the ears, the surging waves rolling in against the bottom of the precipice. The melancholy grandeur of the scene, the billows of the broad Atlantic in all their varied forms, the rocky precipices that echo the ceaseless roar of the raging sea, and the screaming of the thousands of sea-fowl, are all indelibly riveted in my memory. In some places the rocks are apparently perpendicular and smooth; at others, rent, riven, and worn by the heavy waves into long, deep, vertical chasms and caverns, split and worn by the huge rolling breakers dashing their weight on the rock-bound coast. It will thus be seen that rock-pigeon shooting should only be attempted in fine weather, and with boatmen who know the coast, otherwise the boat may suffer by bumping on a submerged rock. In a pleasant day, how-

ever, it is most enjoyable. To the lover of nature such an excursion has many attractions: the ornithologist, the botanist, the geologist, and the admirer of cliff scenery will find much to interest them.

It is the caves above described that constitute the breeding haunts of the rock-pigeon. On rowing to the entrance of one of the caves, and giving a halloo or a thump with an oar on the boat, the flapping of wings may be heard, and out comes a flock of the objects of pursuit. He is well skilled with the gun who can make "a right and left" at these birds, as, with the erratic twistings of a snipe, they whisk round a corner of rock with great rapidity.

When shooting round the coast of Walls, in Orkney, I noticed that pigeons were continually going and returning over the top of the cliffs, evidently feeding inland. Sailing to where the rocks lowered and getting ashore, it was seen the birds were feeding on a field of newly-cut grain. Concealing myself in a dry ditch among rank vegetation, I bagged a number as they flew to and from the rocks to the feeding-ground.

Rock-pigeons do not confine themselves to the coast. Sir Ralph Payne-Gallwey, in his 'Hints to Young Shooters,' says it is "entirely a coast bird." This is not the case, as I have shot them from rocks on the open moor on the Poltalloch Estate in Argyllshire, and elsewhere. On Tweedside, at Milnegraden, a few miles below Coldstream, there are rugged perpendicular rocks frequented by the birds in question. They cling tenaciously to this place, though a number are periodically but judiciously shot annually.

Pigeons are long-lived birds, and it is said they pair for life. Andrew Duncan, Sheriff-Substitute of Shetland, had a tame rock-pigeon for twenty years.

Professor Macgilivray of Aberdeen reared a young rock-pigeon and fed it with dry barley grain by the side of the mouth, which occasioned inflammation and swelling of the basal margins of the mandibles. The bill became tumid and sore, but on the advice of a friend he took a mouthful of barley-and-water, and introduced the pigeon's bill, when the bird soon satisfied itself, flapping its wings gently all the time. Whenever the bird saw the Professor it flew to him and settled on his shoulder, directing its bill towards his mouth. Its tameness cost it its life, as it was stoned to death by some boys. "Long and true was my sorrow for my lost companion," wrote the Professor, "the remembrance

of which will probably continue as long as life. I have since mourned the loss of a far dearer dove. They were gentle and lovely beings; but while the one has been blended with the elements, the other remains 'hid with Christ in God,' and for it I mourn not as those who have no hope."

The rock-dove is an interesting bird were it for nothing else but the wild character of its places of abode.

CHAPTER XI.

TROUT-FISHING.

No species of sport in recent times has become more popular than angling. Formerly it was followed almost exclusively by those who had been reared in the country, and who during their early years had become attached to the use of the rod. But the rapidity and ease with which the inhabitants of large towns are now transferred by railway and motors to the rivers, lochs, and mountain streams has tended greatly to increase the number of the followers of Izaak Walton.

As patience, perseverance, and experience are necessary to ordinary success in the "gentle art," it may reasonably be expected that disappointment will to a certain extent attend beginners. In addition to the qualities above indicated, a considerable amount of skill, and some knowledge of the instincts and habits of the finny tribe are indispensable to anything like uniform success. Indeed, all these qualities combined constitute no guarantee that a good basket will be always obtained. There are so many conditions necessary to secure a good day's fishing that it is rare for the angler to find a combination of these favourable for his purpose. There are the state of the water, the direction and state of the wind, the temperature, the amount of sunshine, and the appearance of the sky, all of which exercise an important influence on the fortunes of the fisherman. Still, trout are so fastidious as not unfrequently to resist the most tempting lure, even with the realisation of the most favourable conditions. There are times when the fish feed at the bottom, and other times they are found floating half-way between the bottom and the surface on the outlook for food from above. This will probably explain why fish take better at one season than another, and why, as a rule, there are certain times

of the day, when the "take is on," that anglers realise success. As is well known, there are times when trout can be taken only with bait, while at other times, in the same places, they can readily be caught with fly. It is a peculiarity common to all anglers that, notwithstanding the large measure of disappointment with which angling is associated, even the most unsuccessful continue to indulge in it with hopeful anticipation that the future will prove more successful than the past. There is something in the healthful exercise and in the change of scenery which makes a day's ramble among the mountains or by the river-side a joy to be remembered—all the more so if the angler be a lover of nature, and able to appreciate the bracing air of the country, which forms a happy contrast with the continuous din and smoky atmosphere of the large centres of population.

Under any circumstances use of the rod and line is a most healthful and enjoyable pastime for those engaged in professional or commercial life; it is all the more so when rewarded by a good basket of fine yellow trout. With the view of contributing to this result, a few hints may be submitted regarding the haunts, habits, and peculiarities of trout, and the means to be adopted for their capture by rod and line.

Having made a careful study of trout in all their variable conditions, and having had exceptional facilities for observing their habits, a description of these may be interesting. A visit, however, to the breeding-ponds at Howietoun, near Stirling, or elsewhere, will in an hour or two afford more information than can be acquired by the perusal of volumes. Not the least interesting trait is the habits of the parent fish upon the spawning-bed. In order to witness this interesting sight I repaired in the month of November to Dalnaspidal in Perthshire, and after darkness had set in, accompanied by the under-keeper, we rowed three miles up Loch Garry and "burnt" the river Shellain, which empties itself into the loch. Spreading tar on a sack after the manner of butter on a slice of bread, we rolled the sacking round and nailed it to a pole carried from home for the purpose, there being at the time no trees in that wild and mountainous region. Pouring a bottle of paraffin on the tar-besmeared sack, and putting a lighted match to it, we waded up the centre of the stream. We had now and then to walk ashore, through inability to bear the cold on our limbs; but with perseverance we got accustomed to this, and rather enjoyed it than otherwise. The vivid glare of the blazing torch in the dense

darkness, the solemn silence that prevailed—not a sound being heard except the liquid melody of cascades rushing over the rocky mountain-sides, or the plunging swish caused by our footsteps as we waded abreast of the current—constituted altogether a wild and weird experience. There were numbers of fish upon the spawning-bed, but as these were chiefly salmon and sea-trout, they had no attractions for me. Farther up the stream I discovered many pairs of trout upon the “redd,” the yellow-coloured denizens of the river being easily recognised from the dark-skinned frequenters of the lake, which had ascended to perpetuate their species. I there discovered a peculiarity among trout—viz., the occasional choosing of a partner much larger or much smaller in size than themselves. On a “redd” a female *Salmo ferox* of ten pounds in weight was with a male not above a quarter her size. For a long time I looked at them lying side by side, they doubtless wondering meanwhile what strange phenomenon the glare of the torch could be. Having arranged with a distinguished scientific authority to provide specimens for purposes of dissection, with the view of discovering whether the *Salmo ferox* was a distinct species, I lifted the female out with the aid of a gaff and despatched her on the grass. The male, taking fright by the splashing of his partner, rushed up-stream, but on returning to the water, it was found he had come back to the identical spot where he lay before, when I secured him also. Personally, as well as in conjunction with professional authorities, I have dissected and examined numbers of these large fish caught in different Highland lochs, but have never been able to discriminate betwixt them and ordinary trout. I am disposed to treat them as simply overgrown monsters that for years have gorged themselves on the smaller trout that abound in the lochs they frequent.

After the spawn is safely deposited in the “redd” it is exposed to many contingencies of an adverse nature. Very frequently it is disturbed by thunderstorms or excessive wet weather, which bring down the river in spate, carrying stones and gravel before its impetuous force, altering the bed of the stream, and washing amongst the water the spawn from the “redd,” which will doubtless be then devoured by trout in search of food. It almost seems an incredible thing in nature that trout should devour the spawn of their own species; still, true it is that they do actually devour it in large quantities, and nothing makes a better bait for fishing than preserved roe—though

this, of course, is illegal. Many kinds of birds are blamed for devouring the spawn of fish, and notably the water-ousel. While I have no desire to dogmatise on the subject, I must confess that as to this bird I feel a little sceptical. With me it is a special favourite, and I dislike destroying it, even for scientific purposes. Must it be confessed that I have shot a few of them? but I am proud to state that in no case did I find in their maw the spawn of any kind of fish. I do not, however, regard this as conclusive testimony. In those I dissected crustacea only were found.

A large quantity of the spawn of early fish is destroyed by later ones disturbing the "redd" in depositing their own ova. The period of incubation of trout spawn is about two months, varying, of course, with the temperature of the water. As soon as the young trout issue from the eggs, they are assailed by numerous enemies. Notably among these may be mentioned kingfishers, herons, ducks, gulls, &c. In regard to the first mentioned, it is the gaudiest of British birds, and no angler grudges it its food supplies. I have watched the nest of a kingfisher from the opposite side of the Tweed, and the number of times the parent birds, with a small fish in their bills, flew to feed their young surprised me much. I subsequently discovered that there were eight young ones to cater for, which necessarily required a good deal of feeding. It is most interesting to watch them fishing. Sometimes they sit on a twig a few yards from the stream till sighting a small fish, when they dart like lightning into the water, remaining a second or two below the surface. At other times they hover like an osprey above the water, then dart down on perceiving a fish. When successful in catching one, they beat it to death before swallowing it head-foremost. So strongly are they endowed with this instinct, that a pet bird I kept in a cage must needs go through the process of "killing" the bits of beef on which it was fed before swallowing them. The beautiful plumage of the kingfisher, the interesting manner by which it captures its finny prey, the fables associated with its early history, and its curious dwelling by the river-side invest it with interest, and its presence imparts much pleasure to every genuine disciple of Izaak Walton.

The heron, no doubt, is a deadly enemy to trout, but its food supplies are not confined to fish alone. Rats, mice, moles, frogs, birds, and any living thing he can swallow, are included in his bill of fare. A good many instances have been recorded of one being found dead,

choked in the act of swallowing a large rat. A pet bird I kept used to sit close to a vessel in which domestic poultry were fed. After the poultry had fed and left, starlings and other birds assembled to feed on the remains. The heron sat with his long neck in between his shoulders, the embodiment of innocence. Presently he struck out, and the blow caused instant death to a starling, and it quickly found its way into his capacious maw. For a time his castings contained little else but the bones, beaks, feet, and feathers of starlings.

Once, when fishing in the Leader, I saw a heron standing motionless by the river-side, evidently on the outlook for food. Concealing myself behind a bush, I watched with interest to see him secure a fish. His patience was superior to mine, however, and I was on the point of stepping from behind the bush in order to again commence, when he suddenly struck at something in the water. He secured an eel over a foot in length, which was wriggling in his bill. Evidently aware of the slippery nature of his prey, he ran a considerable distance up on to the meadow before laying it down. It was then subjected to a deal of hammering from his powerful beak, when it was again seized, and, not without difficulty from its wrigglings, the captor eventually managed to swallow it.

I recollect a young keeper shooting a heron at the side of Loch Garry, in Perthshire. On dissecting it I found six trout from five to seven inches in length in its maw. A well-known citizen of Edinburgh stocked an ornamental pond close to his house with many dozens of gold and silver fish, and a heron which was seen in the early morning soon cleared them out. Still I dislike seeing them destroyed.

It is an object-lesson to all anglers to note the patience of the heron when fishing. For hours it may be seen standing motionless by the river-side till a fish comes within reach, when with unerring aim it secures its prey. Clearly the plumage of the heron has at least something to do with the fact of fish swimming so close to it. Anglers should taken a lesson from nature, and dress in colours harmonising with that of the heron.

Ducks, both wild and tame, are destructive to trout. Being nocturnal in their habits, it is most difficult to observe wild ducks feeding, but on several occasions I have seen the tame breed killing trout, and it is certain their wild cousins will also do so. In the burn which flows past my home, I have watched my neighbour's ducks

“guddling” with their bills under the banks, and on different occasions was amused to notice one bring out a trout about three or four inches in length. The trout wriggled to escape, but for a minute or two the duck held it firmly till it became quiet, when it swallowed it head first.

The cormorant is another bird most destructive to trout. I have watched them fishing in the river Beaulieu. Swimming low in the water, they would suddenly dive, remain a considerable time below, and reappear at some distance from where I expected, generally with a trout in their bills, some of them the size of herrings. The quantity of fish these birds devour is amazing, and as what they catch is either trout or young salmon, no mercy should be shown them when they come inland. Recently, when fishing the lower reaches of the Tweed, I observed a number of cormorants, which surprised me. I never saw them in my young days, but they have evidently discovered there are fish to be caught in this river, and haunt it to satisfy their voracious appetites.

Otters also are very destructive to trout, and in streams which they frequent they destroy a great many of the largest-sized ones. It is, however, a mistake to suppose, as many do, that the food of otters is confined to fish. I have, as already observed, known them drag rabbits out of traps, and have found both fur and feathers in their droppings.

Strange to say, among the greatest enemies to trout, with the exception perhaps of pike, are their own species. A trout two months old has been known to devour a number almost half its age. Such are their cannibalistic tendencies, that unless they have plenty of insect food they will devour each other so long as there is much difference in their size. What is sometimes found in the stomach of a trout, as well as the size to which that organ will distend, would hardly be credited. In the Museum of Science and Art in Edinburgh there is a trout stuffed which weighed 12 lb., and from the stomach of which I took, after it was caught, six of its own species, which weighed in the aggregate 1½ lb. In another, which scaled 14 lb., I found a trout partly assimilated, but which must have weighed 8 or 9 ounces, besides no fewer than five frogs. A third, under 8 lb., had swallowed a half-grown water-vole, a frog, and two small trout.

Taking all the natural enemies of trout combined, the sum-total of the mischief done by them is insignificant when compared with the wholesale depredations of the poaching fraternity. It is but right to

acknowledge that, so far as the Legislature is concerned, protection has been extended to trout by statute law. The defect, however, is in the administration of that law. Unless it be an occasional gamekeeper—who has generally other work to attend to—or a public-spirited shepherd, the poaching fraternity pursue their depredations without dread of molestation. For many years I have been aware that some of the finest trouting streams in Lanarkshire, Peeblesshire, and adjacent counties have been ever and anon harried by nets and kindred devices. This practice is invariably pursued during the night and early morning, the effect being that while all the small trout are left, few of the larger ones escape. This is the true secret of the falling off in the numbers of large trout, and the real source of that disappointment of which the modern angler has uniformly to complain. I see no remedy for this state of matters except that any one found with a net in his possession should be heavily punished. Prohibition of the sale of trout would also go a long way to remedy the evil, as well as the formation of local Anglers' Associations, and the employment of proper authorities to protect our rivers and trouting streams. The expense would be so trifling as not to be compared with the advantages certain to be derived. I would also recommend that a substantial reward be given to all shepherds, gamekeepers, station-masters, and others who would communicate such information as would lead to the conviction of those despicable offenders. It should be the duty of every angler to give information which might lead to the conviction of this class of poacher. If any angler desires to have his indignation stirred against this class, let him examine those trout which are occasionally to be seen in the windows of some of our fish merchants, and he will notice upon many of them the marks of the meshes of the poacher's net. A few swift and heavy penalties is all that would be required to put an end to the proceedings of the mercenary trout-netters.

The Whiteadder has been long and justly famed for the splendid trout-fishing which it affords. There are few rivers where the trout are more uniformly of good size, while they are peculiarly active and strong on the hook. In April large baskets of yellow trout are frequently obtained, and in the autumn sea-trout are occasionally taken even with the small flies. Like all good streams that are free and accessible, the Whiteadder is no longer the angler's paradise of former years. Having acquired a deservedly high reputation, it has become notoriously the

“angler’s resort.” As the pleasures of trout-fishing are greatly enhanced not merely by the number of fish, but by the quiet and solitude which prevail, it is unnecessary to add, that in so far as practical results are concerned, sport on the Whiteadder has sadly degenerated, owing, it is believed, to poachers. There are few things more disheartening to an angler than to have his anticipations of a day’s enjoyment and a good basket frustrated by finding, on reaching the river, that every pool and stream has been whipped by a host of competitors who have preceded him. I have more than once had my full share of this when visiting the river in question. As the first fast train from Edinburgh for the South catches the early slow one at Dunbar, I have frequently on a Saturday travelled with it. On changing for an intermediate station, I was surprised at the array of anglers all bound for the Whiteadder, and I could not help ejaculating the remark, “I am glad I am not a trout to-day.”

The Deveron and the Don are now regarded as among the best trouting streams in the country, and splendid baskets are secured in them. As the season advances in spring and the weather becomes milder, flies begin to appear, and the trout gather strength and begin to rise at them; and as they increase in vigour they become able to resist the current, and are found in moderate streams, where they take flies readily. It sometimes happens that when a cloud of flies appear on the water and are blown across deep parts by the wind, they are followed by trout. This I have noticed on Loch Rannoch, when the trout followed the flies and kept rising even in the centre of the loch. I have also observed, when salmon-fishing on the Tweed at Kelso, in the month of May, a cloud of flies come on the river, and it was interesting to note gulls, swallows, pied-wagtails, and trout all feeding in concert. Trout were rising in dozens, and a fine opportunity for securing a good basket was lost in consequence of not having with me a trout rod and flies.

Though fly-fishing can be prosecuted with some measure of success in streams when the water is small, but more especially when it is settling after a flood, the flies used in such circumstances, or when there is a high wind and the water rough, should be somewhat larger, and smaller chosen as the water becomes clear and as the season advances. Anglers cannot be ignorant of the kind of flies to use if they pay attention to the natural ones, which may be seen floating down the stream, and

which they will observe to be greedily caught by the trout. Among the most deadly flies are Greenwell's Glory, Blue Dun, Black Spider with different bodies, Olive Dun, March-brown, Woodcock and Harelug, and prominently the "red hackle." This is a fly which may be used at all seasons, and will be found to prove very deadly when the water is in the state described. With these flies the angler will kill trout in any river in Scotland. It is important, when angling with the fly for trout, to guard against having the gut-line or cast too thick—indeed it cannot be too thin, only it must be of good quality, and *gently treated*. Trout require no spectacles, and are quick to detect the gut in smooth clear water, even when cast by the most subtle expert, more especially in those rivers which are daily fished by those whose somewhat clumsy devices are too patent to the trout to admit of their being imposed upon. A vigilant eye should ever be kept on the line in the direction of the flies, so that the instant the trout rises the angler should be ready by a prompt, but by no means violent, turn of the wrist to strike the hook into the mouth of the unsuspecting victim.

Trout rarely rise freely to the fly when the water is rising; but we would remind bait-fishers that then is their special opportunity. From the fact that the rising water frequently brings down with it lots of worms, which have been washed out from the banks and water-courses above the usual bed of the stream, trout are on the outlook for them, and thus become an easy prey to the angler. Bait-fishing, however, is not confined to water immediately after a spate. I have secured many trout when the river was small, in bright sunshine, by wading in a rough stream and casting the worm upwards. In point of fact it is when the river is low and clear that worm-fishing becomes an art, and it is known as "clear-water worming." Many anglers are experts at it, and will fill a basket while the ordinary angler has practically secured none. The finest tackle is essential, and is fished entirely up-stream; and in bright and hottest days when fly-fishing is useless, good baskets are frequently made with the "clear-water worm."

There is a stage while the flood is rising, if not too muddy, or after it has begun to subside, when minnows may be used with success as bait. Much diversity of opinion exists as to whether natural or artificial, which includes phantoms, Devons, horn, and quill minnows. Nowadays, when the former can be pitched a long distance across stream with a short rod and silex reel, I prefer it. I have always had more



A lively Trout.

success with the natural bait, and more especially when trolling in a Highland loch. There are others, however, who prefer the phantom to the natural. A good rule is when the water is coloured the artificial is best, but as the water clears the natural bait is preferable.

Before starting upon a fishing expedition, it is most essential to take care that you have all your tackle and needful appliances with you. It is a serious matter, and certainly most irritating, to find, after walking several miles, when your rod is being put up, that you have left your hooks or reel behind, as is not unfrequently the case. It is no less necessary that the angler, before beginning to fish, should carefully examine his flies and gut, in order to see that they are sufficiently strong and in good condition; for if they have been frequently used they are not always to be depended on. There are more fish lost, and more vexation caused to the angler, by the neglect of this simple precaution than by anything else, as it is generally the best trout that are lost when the tackle gives way.

When trout escape after being hooked by the tongue or throat, they are not likely to rise again for some time; but there are cases, if hooked by the side of the mouth or the front of the upper or lower jaw, when they will rise immediately after, as if nothing had occurred.

When fishing with a friend in the river Orchy, he hooked a trout of considerable size, but the gut gave way and the fish escaped, taking with it the only fly they seemed to be rising at. Putting on another somewhat similar to the one just lost, he recommenced fishing. The first cast he hooked a trout, which after landing, incredible as it may seem, had in its mouth the identical fly he had lost only a few minutes before.

A somewhat similar experience came under my notice when fishing in the Spey, proving that fish do not always suffer from being hooked. A trout rose to my fly, but missed it. Casting over it again, it was secured, and on landing it and taking out the hook, a coarse hair-line was observed sticking out of its mouth. Opening it, a large bait-hook was found attached to the line sticking in the lower part of the stomach. How long it had been there it is impossible to say, but it seemed to give it no inconvenience, as the trout, which weighed half a pound, was in good condition, and not the least wasted.

Lady Murray of Elibank, in her delightful book, 'Echoes of Sport,' tells us, in September, she hooked a big trout which broke the

worm tackle and escaped. "That evening," she continued, "I landed a good one, also with worm, which proved to be my friend of the morning, as coming out of his mouth was the broken gut, and right down in his stomach the hook. Besides, in his lip was a March-brown fly-hook, which, according to a note in my fishing-book, must have been there since 24th June. A fish with a fly-hook in his mouth, a worm-hook in his stomach, ready to continue to gulp down bait, must surely be quite impervious to what we mortals call pain. I may add I have a truthful witness to this event, and it is not the usual fishing lie."

It is desirable to have the flies at a considerable distance from each other on the cast: in no case, even with small flies, should the distance be less than two feet; and when the flies are large, three feet or more will be a suitable arrangement. When the river permits, anglers should throw a long line, as it is a noticeable fact that large trout are frequently hooked by a long cast, and immediately after the fly touches the water. It will thus be seen how necessary it is that the flies should be cast so as to fall gently like a flake of snow. It must be kept in mind that of all fish, trout are most watchful and quick in vision. It is owing to this being overlooked that we find such a want of success on the part of many anglers who possess all the enthusiasm and perseverance which constitute the essential characteristics of those who prosecute the "gentle art." A casting-line without loops, except that at the end next the reel-line, and having the flies tied on so as to form parts of the cast, is the best. It falls more lightly on the water, and causes less disturbance than a line to which the flies are attached by loops. This same oversight also explains why some who have acquired a fair degree of proficiency often fail to catch with the fly the large fish, although they occasionally manage to obtain a basket of smaller ones. When the angler is able to throw a long line and let the fly fall gently upon the water, he will often be able to reach the place where large trout are lying when the less expert is unable to do so, and thus the best chances are often lost to him. While the advantages of a long cast are thus apparent, it must also be pointed out that trout are not, as a rule, so securely hooked as when a moderate length of line is used. In point of fact, the shorter the line the more likely is the trout to be firmly hooked and the more easily brought to the net.

There is, however, another essential condition to be observed, which is, that the angler, though able to throw a sufficient length of line,

must take care to keep himself thoroughly out of sight. In order to ensure success, the angler must be able not only to conceal himself, but to conceal his purpose; and this remark, be it noticed, must apply to all who aspire to take fish of any kind by rod and line, no matter whether it be by the use of bait or fly. Inattention to this *all-important* rule explains, more than aught else, why many will fish for hours, and sometimes for days, with the most meagre results. The reason is obvious. There are, as already indicated, perhaps no creatures more timid and thoroughly alive to danger than the denizens of our rivers and mountain tributaries.

It is not enough that the angler keeps out of sight. If he is to be successful in filling his basket, he must be no less careful to move softly along the bank, as one of the means of the self-preservation of the trout is its extreme sensitiveness to any unnatural action upon the water. So much is this the case, that the vibration caused by a person walking heavily along a bank above the level of the river, although unperceived, will cause trout in a pool to rush timidly about, taking refuge beneath the stones and turfs. When wading, extreme caution is also required. Each successive step should at once be short and soft, so that the disturbed action of the current may be confined within the narrowest possible limit.

It is in circumstances like the above that urchins, as if by common instinct, have been tempted to cast off their jackets, and rolling up their sleeves, betake themselves to the process of "guddling," by which the trout are forcibly taken from beneath the stones and the turfs which constitute the banks of the stream. In Scotland this used to be a favourite pastime, in which the schoolboys in the pastoral districts of Dumfriesshire, Selkirkshire, Peeblesshire, and Berwickshire revelled with intense delight. Well do I remember the schoolboy days and the bird-nesting and "guddling" excursions. How I envied the birds, who had neither morning nor evening lessons, who did not know what out-of-bounds meant, and whose life seemed one long holiday. The Graden Burn, which constitutes the boundary between the Ladykirk and Milnegraden Estates, used to be a favourite resort, and many dozens of trout were taken from it by "guddling" and snaring them with a single strand of snare wire.

In these later times, when angling has become such a popular enjoyment among all classes, "guddling" is generally discouraged and

wellnigh abandoned. A clerical friend was once spending his holidays amid the uplands of Lanarkshire. He was an enthusiastic angler, and one beautiful afternoon was prosecuting his favourite pastime, but with indifferent success. On turning round a heathery knoll, where there was a bend in the stream, he came upon a band of boys who had, on the occasion of a school holiday, betaken themselves to the Daer for a day's "guddling." On seeing that the boys took fright at his approach, he thought to have some fun at their expense. As the urchins ran off with their jackets in hand, and one with about a dozen trout strung by the gills upon a twig of heather, the clerical angler ran after them, simulating great anxiety to get hold of one of the "guddlers." After they had all succeeded in getting across the stream, and deeming themselves safe beyond his reach, one of the most precocious of the lot halted and defiantly looked his pursuer in the face. The minister, addressing him, said, "I wonder that you are not ashamed of yourselves to be catching the poor trout by 'guddling' them beneath the stones; you know that is most unfair." The representative of the "guddling" fraternity retorted from across the stream, "It's you that should be 'shamed, for trying to cheat them wi' sham flies." It is almost needless to say this clever retort the minister greatly relished, and used to tell it among his friends with that genial humour for which he was proverbial.

Though beyond doubt the large increase in the number of the followers of Izaak Walton will to a certain extent reduce the weight of catches, very many trout being captured, and the streams being so often whipped, making them shy, it would, however, be a mistake to suppose that the decline in the angler's success is exclusively traceable to the reasons assigned. Fresh-water trout are so much appreciated in our towns and large cities that a ready market and high prices can always be found for them. The effect of this has been to give rise to an extensive system of poaching by lawless persons, who have recourse to netting our mountain streams and rivers during the night. By this means the number of trout which are carried off, even where they are preserved, is larger than most people would believe; while the trout that escape are so scared that they betake themselves to their hiding-places, so that for a day or two fly-fishing is to a large extent fruitless where the netters have been at work.

Another cause which contributes to destroy the prospects of the angler in some of our rivers is the refuse and poisonous matter intro-

duced into the river. This is a point upon which there has been much contention and diversity of opinion, but cases of the wholesale destruction of trout from this cause have unfortunately occurred, and place the matter beyond dispute. Stoddart was jealous of the reputation of the Tweed, and where is the man who can withstand his spirited appeal for purity, as in the following lines?—

“Of our rivers still the glory;
God defend it! There is need,
For the demon of pollution
Campeth on the banks of Tweed,
Pelf and self! the double demon,
From its clutch, good God, deliver!
Save from taint of the defiler,
Saviour! save our dearest river!”

On one occasion, for about a dozen miles below where a mill-lade enters the Tweed at Walkerburn, dead fish were to be seen from the river-banks in great numbers. The Procurator-Fiscal raised an action and obtained a conviction against the guilty parties. Since then the Rivers Pollution Prevention (Border Councils) Act, 1898 (61 and 62 Vict. chap. 34), has been placed upon the Statute-Book, and much good has resulted. It is still, however, far from satisfactory, as refuse of every description is carried and tumbled into the Tweed. That such a state of matters should be allowed to exist is a blot on the intelligence of those public bodies having jurisdiction to enforce the provisions of the Rivers Pollution Prevention Act. I therefore ask, in all seriousness, is this state of matters to be allowed to go on?

Recently the County Council of Mid-Lothian was repairing the road at Liberton, and among the stones was a quantity of tar or some other offensive chemical. A heavy rain came on and washed some of the chemical matter into the Braid Burn, with the result that every fish, from where it entered to the sea, was poisoned. It was the more annoying as the proprietor of Craigmillar, through whose policies the burn flows, had shortly before purchased and put into it a large number of trout. This poisoning, of course, was an accident, but it shows the danger of pollution in any form. There is a Committee now inquiring into the best methods of road-tarring, so as to avoid anything similar happening.

A villainous practice is occasionally indulged in by certain lawless persons of the baser sort having recourse to the use of explosives for the

destruction of fish. The havoc wrought by this device is so incalculable that to the uninitiated it will appear incredible. By the introduction of a quantity of a powerful explosive into a pool stocked with trout or salmon, everything that partakes of life is mercilessly destroyed. As soon as the water has become clear, all the trout or salmon which have come within the sweep of the violent explosion are to be seen dead or dying, numbers with still a spark of life in them floating towards the surface. As society has very properly resolved that no mercy should be extended to those who have recourse to the use of explosives for the destruction of public buildings, I have no hesitation in urging that this class of poacher, to which attention has been called, should be visited with penalties of the most extreme kind. Though several cases of poaching with explosives have been recorded, no one, as far as I recollect, was brought to justice. In view of such a case as this, it is for the Legislature to consider whether this system of river poaching should not be dealt with by special penalties.

Such practices as harrying the river by nets, or poisoning the fish with lime or other deleterious substances, are already expressly prohibited, under severe penalties, by the Fresh-water Fisheries (Scotland) Act of 1845, entitled, "An Act to prevent fishing for trout or other fresh-water fish by nets in the rivers and waters of Scotland," and also by the Act of July 1860, entitled, "An Act to extend the Act of the 8th and 9th years of Victoria, chapter 26, for preventing fishing for trout or other fresh-water fish in the rivers and waters in Scotland."

Another appeal to the Legislature resulted in the Fresh-water Fisheries (Scotland) Act, 1902, becoming law. Under the provisions of this Act it is illegal, between the 15th day of October in any year and the 28th day of February in the year following (both inclusive), for any person to (a) fish for or take common trout (*Salmo fario*) in any river, water, or loch in Scotland by net, rod, line, or otherwise; or (b) have possession of common trout; or (c) expose common trout for sale, subject to a penalty not exceeding five pounds for every such offence.

Throughout Scotland, and especially in the counties of Argyll, Ross, and Sutherland, there are many fresh-water lochs which afford splendid sport for the angler. The Outer Hebrides has acquired a great reputation in consequence of the ease with which large baskets can be had from several of its fresh-water lakes. Some of these lochs in the north are

of but small dimensions, and yet the fish in them are most abundant. On different occasions I have stayed with my late friends at the manse at Alness and Lochluichart in Ross-shire, and have, by driving to different lochs in the county, secured splendid baskets.

In Sutherland the number of these lochs—or tarns, as the smaller ones are sometimes called—is legion, affording endless facilities for sport. Those, however, who prefer trolling with bait to fly-fishing must direct their attention to lochs of much larger dimensions, where they may have ample scope without the risk of their line being brought into contact with weeds and other impediments. It is in such lakes as Loch Maree, Loch Morrie, Lochluichart, Loch Awe, Loch Assynt, Loch Shin, Loch Rannoch, Loch Ericht, and Loch Garry that large overgrown trout, popularly designated *Salmo ferox*, are to be encountered, affording sport scarcely inferior to salmon-fishing. Notwithstanding the confidence with which certain recognised authorities have affirmed that those large fish are a distinct species, I have never been able to discover any peculiarity not to be found in ordinary loch-trout. I am disposed to treat those large specimens, whose habitat is the fresh-water loch, as aged fish that have lived and gorged themselves upon small trout, frogs, &c., for a long series of years. The duration of the life of a fish in natural circumstances has never been satisfactorily ascertained; but those who may have dissected any of the fish in question must be satisfied that they have existed for very many years, while, as food, they are found most unsavoury, and contrast unfavourably with the generality of fresh-water fish.

Mr I. I. Armistead, in his interesting book, ‘An Angler’s Paradise, and How to Obtain It,’ says, “The average life of trout is about ten years.” It would be difficult to arrive at a conclusion as to what the average life of a trout in natural circumstances would be, but their longevity has been demonstrated by numerous well-authenticated cases where they have been introduced into public wells and miniature ponds in gentlemen’s pleasure-grounds. James Crossby removed a trout from the Leader in 1835 and placed it in a well in Earlston, where it lived till 1869. It fell off in condition for some time before its death, and was much emaciated. Another lived in a well in Dumbarton Castle for twenty-eight years.

In 1868 a yellow trout was put into a well at Windshields, Hutton, near Lockerbie. The last survivor of those who took charge of it died

in 1884, but a friend living at a distance took charge of the trout, and removed it to another well.

In 1876 Mr James Gray placed a trout in the "Lady Well," in the east end of the village of Leuchars, in Fife. In 1884 it was over seventeen inches in length, and about six pounds in weight. I have not heard of it since.

Before the law of gravitation was understood, the inhabitants in many cases depended on a well for their water supply; and even at the present day, in many country hamlets, wells still exist. A popular notion prevails that a trout in the well is indispensable, in order that it may eat up any animalculæ that might constitute pollution, and my observations and experiments throughout life very generally corroborate this theory. The staple food of trout, besides flies and worms, consists of molluscs, limnæa, gammari, &c., and to those who know the immensely prolific nature of these aquatic creatures, and the amount of larvæ and spawn which they produce, the gross pollution they would cause without the aid of scavengers in the shape of fish must be very apparent. As an experiment, I put half a dozen molluscs (*Limnæa peregra*) into a crystal tumbler among water clear as the crystal itself, and in twelve hours the water was very sensibly muddy. Some capsules containing the eggs of the molluscs adhered to the sides of the tumbler. When it is taken into consideration that this happened without the *Limnææ* having anything to eat, it will be readily believed that in natural circumstances, with abundance of food, the pollution must have been far greater.

By a wise provision of nature aquatic weeds generally grow luxuriantly in sheltered bays in a lake, and any pollution facilitates their growth, by which means the water is purified. So much is this the case, that in my small aquarium containing frogs, newts, molluscs, gammari, &c., it is only necessary to change the water once or twice a year when a plant is growing, whereas without the growing plant it must be changed weekly.

Some years ago an interesting proof was led in the Court of Session in Edinburgh which bears pretty much on the subject in hand. The water trustees of the town of Falkirk sought to interdict the proprietor of the Denny reservoir, whence the town is supplied, from polluting the water by putting some trout-fry into it. On both sides scientific witnesses tendered the most conflicting statements, some of them going

the length of asserting that they had dredged the water and examined it carefully, that there was no food in it for fish, and that the trout introduced would be sure to die and pollute the water. The case lasted two days, and finding I was not to be examined till the second day, I arranged with the factor on the estate to fish in the loch that night and produce the fish in court. They were beautiful trout, and on dissection their stomachs were found to contain limnæa, gammari, and the larvæ of various aquatic insects. The Judge, very properly, decided in favour of the trout.

Now that fishing is being so generally prosecuted, many anglers betake themselves to fish in our fresh-water lochs. In the northern counties, loch fishing is often prosecuted with marked success. In trolling many agree with me in preferring natural to artificial baits. Some, however, have a different opinion, and prefer the phantom to the natural minnow. On Lochs Rannoch, Garry, Ericht, and Tummel, when trolling for *Salmo ferox* with two rods, one with the artificial and the other with the natural bait, in two cases out of three the latter was the more attractive lure. In most of the large trout I have dissected, one or more frogs were generally found in their stomachs along with small trout. Young herrings also make a tempting lure, being very showy in the water.

Though as a rule trolling, in order to be successful, should be prosecuted when there is a good breeze and the loch somewhat troubled, or at unseasonable hours, yet I have caught them when it was quite calm. It is essential to have a long line and heavy lead—depending of course on the depth of the loch—in order that the bait may be sunk deep in the water.

There are few things more enjoyable than trolling on a Highland lake during a mild but somewhat tempestuous day, or during the night in the months of June or July, when the days are at their longest. In many nocturnal expeditions after *Salmo ferox* I have invariably been most fortunate after sunset, or shortly before sunrise. In company with a relation in Pitlochry—an enthusiastic angler—I have often left there about seven o'clock in the evening, driven through some of the most picturesque scenery in the Highlands to Loch Tummel, and commenced to fish between eight and nine o'clock. Trolling several times up and down the river for a few hundred yards where it leaves the loch, we usually secured two or three pike. As a general rule, we

then trolled round the loch, taking care to fish well those parts which we had learned from experience were the haunts of large fish. When midnight approached, we used to disembark, which we generally did at the east end. Here we ever found ready at hand the necessary material for kindling a fire, as from the flow of the river, and the high winds being generally from the west, there was a collection of branches, heather-roots, and other debris that made capital fuel. In those regions, even in the midst of summer, the cold about midnight is frequently intense; but when the weather is mild and dry, a night spent in such circumstances is truly enjoyable, though I should not recommend the experiment to be tried by those who are not robust, or by such as are advanced in life. After eating our supper and slumbering for a couple of hours round a blazing fire, we again, with the first streak of light, betook ourselves to the boat, put out our lines, and diligently prosecuted our sport. The grandeur of the landscape was enhanced as the sun began gradually to rise from behind the dark heath-clad mountain, the shade of which appeared for a while to be specially favourable to our angling enterprise. As time wore on, and the sun shot right up into the sky, the conditions for the successful prosecution of sport gradually disappeared. Having learned that sport was not again to be expected till the evening, we gave it up, returning to Pitlochry in the trap, which had been put up at a farm. Three, four, five, and six trout were about the numbers obtained in such expeditions, weighing from three to nine pounds each. Many will think that these numbers scarcely justified our nocturnal expedition; but when one keeps in view the way these large fish fight for their lives, and the consequent excitement that ensues, it must be admitted that there is realised an amount of real sport which, apart from salmon-fishing, is not otherwise attainable.

While large trout are to be had in many Highland lochs, the heaviest specimen I ever caught was in Loch Garry. This fish fought with a tenacity and determination to get free from the hook or break the line that I have never seen equalled, even by a salmon twice its size. It weighed fourteen pounds, and was in good condition, although there was something about its appearance which indicated that for many years it had gorged itself with the smaller fish which frequent the loch. It was caught by trolling, and in its stomach a trout three-quarters of a pound was found.

Dry-fly fishing, considered by the dry-fly angler to be the acme

of piscatorial sport, has come much into vogue in recent years. Fishing for large trout in the Thames was, it is said, the origin of it. Certainly the chalk streams in the South, such as the Test, Itchen, Kennet, &c., are the home of the dry-fly angler, but the art has spread all over the country. For dry-fly work the angler must be equipped with a suitable rod, a large contracted pattern reel for quick winding, and suitable double-tapered line. The line must be kept well greased so that it will float on the water and not sink readily. A tapered cast from fairly stout down to the finest drawn gut is used when the water is low and clear. This combination gives the best results, as with the taper from the rod point to the fly the angler casts cleaner and farther, and experts can place their fly exactly where they want it in front of a rising trout. One fly only is used, and it should be dipped in odourless paraffin, or other preparation sold for the purpose. For keeping the line well greased there are numerous lubricants, but the kidney-fat of deer is regarded as the best, and I am frequently asked by dry-fly fishers to procure some for them. The method in dry-fly fishing is to watch for a rising trout, select the nearest fly you have to resemble those on the water, and by a series of false casts, keeping the fly swinging backwards and forwards in the air until you have the desired length of line, then make the cast. Care must be taken in judging the proper length of line, and try to let the fly drop lightly like a flake of snow on the water a couple of feet above where the fish showed itself. It is desirable that the line is not jerked, so that the fly float like a natural one down stream, and the fly only. Drop the point of the rod so that it is pointing to the fly, and quietly pull the slack line as it floats over the fish. A small ring in the water and the disappearance of your fly shows it has been taken. On striking the trout is hooked, and you are now ready for a fight to the finish. While small trout rise with a splash, large ones simply suck in the fly.

The food supplies of the nation should be fostered, encouraged, and developed to the greatest possible extent. This is generally regarded as the growing of grain and the raising of sheep and cattle. The harvests of the sea, rivers, and lochs, however, all contribute to the supplies, though trout have hitherto received scant attention. We have learnt much from the Germans during the world war, and we might take a leaf out of their book in regard to the cultivation of trout. In that country the owner of every bit of water is compelled by law to restock it every year

by putting in a trout for every one taken out. Unfortunately in this country trout are only regarded as beasts of the chase, to amuse those who indulge in piscatorial pursuits, but not as an important article of popular food. We hear a great deal nowadays about small holdings in order to get the most out of the land, but our best endeavours should also be to get the most out of the water. Loch Leven is perhaps one of the best-managed lochs in the country. Irrespective of the pleasure it affords, and the healthy exercise it gives to those professional and commercial gentlemen shut up in offices, do the thousands of trout caught not contribute to the food supplies of the nation? Does it not produce a quantity of delicious and sustaining food for the benefit of the people?

Every sheet of water in the country should therefore be stocked with trout, and carefully netted in order to remove pike, coarse fish, and large trout should they be present, as they prey upon the small fish. It is no excuse nowadays to say fish were never in a small loch, as fry can be so easily purchased and turned out. Many years ago, the late Mr Macintyre, the veteran keeper at Dalnaspidal, and I, netted Loch Garry, and put between sixty and seventy small trout into two pails filled with water, and carried them a long distance up a steep mountain-side to a small lochan near the summit, which must be about 2000 feet above sea-level. A few years after when passing this tarn I observed a fish rise, and though it did not show itself it appeared to be a large one. Returning in the evening with my rod I succeeded in capturing four trout uniform in size, and as near as could be guessed, three pounds in weight. As the lochan had neither inlet nor outlet, there were no facilities for spawning, and no indication of small trout being seen. Leaving the district shortly after, I never heard further of fishing in this miniature loch. Despite the fact, however, of the water being thickly coated with ice for many months in that high altitude, the trout had grown rapidly. There was no trouble, no expense: everything was supplied by nature. It is an object-lesson of what may be done in practically every sheet of water in the country.

Speaking of loch fishing as a whole, there is no other equal to Loch Leven for general trout-fishing. True, there are no *Salmo ferox* to be encountered—although an occasional trout of three or three and a half pounds is to be had—but the average size and quality of the trout are not to be surpassed in any loch in the United Kingdom. One over ten

pounds was recently got, but that is exceptional. The stock of fish is well sustained through being supplemented from artificial breeding-ponds; and so famous have they become, that numerous applications are made from all quarters for quantities to stock preserved places.

As elsewhere, success on Loch Leven is variable, and of course dependent on circumstances. Twenty trout, of the average weight of one pound, are occasionally secured, though it is scarcely necessary to say that two or three fish, or even a blank day altogether, is by no means uncommon. Anglers are a good deal led astray by the heavy baskets recorded in the newspapers, and not unfrequently resolve to have a day on the loch, anticipating similar success. Those to whom money and time are no object may come to have enjoyable sport on Loch Leven, for should they have an unsuccessful day, they may be more fortunate the next. Still, when time and money are considerations, the waiting on at the hotel for a favourable day may prove somewhat inconvenient. The charges for fishing on Loch Leven are high, 3s. (plus boatman's lunch) an hour being the terms for a boat, while the boatmen generally acquit themselves so satisfactorily as to deserve some recognition, although it is but right to add that the above charge is understood to include the remuneration of one boatman. As a rule, the boats generally leave the pier about ten o'clock. On starting, some prefer to troll a phantom-minnow for a mile or two before commencing to drift for fly-fishing. They may then fish industriously for five or six hours, and be rewarded only by about one to the hour for each rod. Others, again, may not be so successful, while on the same day one or more parties may secure a good basket. On arriving at the pier, those who have obtained large baskets are prompt to have them weighed, and the number and weight of fish duly entered in the register. Those who have been less successful, as a rule, intimate the number caught and weight, but decline to have them published. On the following morning, the few who have succeeded in obtaining large baskets are duly reported by the Press, while the large number who have been unsuccessful are never heard of.

Those unacquainted with certain practices which prevail at Loch Leven are apt to be misled by these newspaper paragraphs. It must be noted that in each of the boats there are generally two, and sometimes three, rods constantly in use, and that the number of fish thus caught by one boat are not, as many suppose, caught by one gentleman.

The assiduity with which these rods are used is remarkable, the anglers continuing industriously casting and trolling when the boatmen are rowing from drift to drift. Even while the gentlemen are eating their lunch, the boatmen utilise every minute by using the rods, and most of them being experts, they materially aid the filling of the basket.

Unlike most other lochs, the best fishing is to be got on Loch Leven with an east wind, and the best flies to use are "the naylor, peat-moss, March-brown, heckham-peckham, green-mantle, or teal and red," all of Loch Leven size, with a moderate breeze, and a little larger when the water is rough. In a stiff breeze this loch is at times very stormy; but the boats are large and safe, and consequently little danger is to be apprehended. As a rule, the Loch Leven trout, when they do rise, take greedily, and are more frequently hooked than in most lochs; hence, when there is a good breeze and a dark sky, no great skill is required if due care be taken in lifting the trout into the boat. It not unfrequently happens that while there is a skilled angler and a comparative novice in the same boat, the latter will be found the more successful of the two.

It is advisable that those who incur the expense of an occasional day at Loch Leven should not waste their time in the deep water. As a general rule, trout will be found on some of the banks which are well known to the fishermen, while, towards the evening, successful sport will often be had within a distance of from sixty to a hundred yards from the shore. Personally I have seldom failed, somewhat late in the afternoon, to hook some of the finest trout just on the black line which divides the deep water from the beautiful white sandy or shingly beach.

Loch Leven is also famed for its perch-fishing. They are not only numerous, but exceptionally large, and by using the common red worm as a bait, they afford most enjoyable amusement for ladies and juveniles in the cultivation of their piscatorial tastes. The charge for boats engaged in perch-fishing is about the half charged for trout-fishing. This arrangement by the proprietors is a wise one and to be encouraged, as the large number of perch in Loch Leven necessarily diminishes the food supplies of the trout.

There are also pike in Loch Leven, and they are occasionally caught when trolling. From the large quantity of trout devoured by these "fresh-water sharks," the Company, to their credit, spare neither trouble nor expense to reduce their numbers as much as possible by netting and other methods.

CHAPTER XII.

SALMON AND SALMON-FISHING.

AMONG the numerous and varied species of fresh- and salt-water fish, the salmon is the king. There are few finer sights for the naturalist or the piscatorial devotee than a well-conditioned salmon: whether as regards his small head, finely-curved tail, or general symmetry, he is without a rival.

The natural history of the salmon is a subject which has afforded ample material for discussion. Experiments in breeding-ponds demonstrate beyond doubt that between three and four months after the ova have been deposited, the young fish issue from the eggs. After remaining two years in the river as parr, they assume the migratory hue and descend to the sea as smolts. It has been asserted that some descend at one year old, while others remain till the third year. May is the principal month for descent to the salt water. It is not the intention here to dilate on the juvenile life of the salmon, but to those interested I would recommend a perusal of 'The Life of the Salmon,' by W. L. Calderwood, Inspector of Salmon Fisheries for Scotland.

Mr Ian T. Nelson experimented by putting over 40,000 salmon fry into a loch artificially made, thirty acres in extent, on his estate in Glenetive, and some thousands for several consecutive years afterwards. He also put in 1000 yearlings, marked by the removal of the adipose fin. Three years after the first were put in eleven grilse were taken, and the following year four salmon and three grilse. As fish of the salmon kind were never seen there before, their homing instincts are clearly indicated.

This is in one sense satisfactory, but the inquiring naturalist thirsts for further information. If eighteen fish are all that are known to have returned in two years out of forty thousand, where was the missing

majority? It is a simple matter to hatch fish and turn them into our streams and lochs, but it is another and a very different thing to protect them from their numerous enemies during their babyhood. We are ignorant of all the dangers they have to encounter in their marine wanderings. It is, however, from the enemies that beset their path before reaching the sea that man can assist in protecting them. While we are helpless with regard to the vast numbers of salmon that are destroyed in the sea by seals and other enemies, I ask in all seriousness, is this not a greater reason why we should take better care of them during their infancy and when they are visitors in our streams?

Towards the end of April young salmon are about an inch in length, and a year afterwards are from three to four inches. They frequent shallow water, and conceal themselves from enemies amongst the stones. It is at this stage that I urge my appeal for protection. Who has not noticed in shallow streams in our rivers the flocks of gulls that frequent them? When fishing in the Tweed immediately above a stream where many salmon spawn, I observed a large flock of herring gulls and kittiwakes disporting themselves the entire day, sometimes for a change flying out and settling on the meadow, where they preened their feathers for a time, and again returned to the stream. What were they doing there? No doubt they were in search of food—and what was the food? All predatory birds cast the indigestible parts in a bolus oblong in shape, and the gull is no exception. I have all my life taken an interest in the castings of birds—all the hawk tribe, from the eagle downwards, as well as the owl species, the heron, the rook, the kingfisher, &c.—but, strange as it may appear, not the gull. Here, however, was an opportunity of doing so. Noting where they were sitting on the meadow, after fishing out the pool I repaired to the spot. Of course they flew off on my approach. The quantities of their castings demonstrated that they had “fared sumptuously every day.” As may be expected, the bones of the tiny fish an inch in length, and even parr, would disappear under the gastric juices in the process of digestion. I, however, found a number of bones among the castings which appeared to be those of trout; some of them had evidently been the size of those of herring. I handed them to Mr Calderwood, in the hope that he may use his influence to have the Wild Birds Protection Act annulled in regard to gulls, so that our fishing streams may be

protected from the ravages of these predatory birds. We have Scriptural warrant for saying that man was to have "dominion over the fish of the sea, and over the fowl of the air." I presume that salmon and gulls are included in that category. We have here an illustration of legislation gone mad. Why should gulls be protected during the breeding season? It is no one's business to destroy them. In no way do they contribute to the food supplies of the nation. In point of fact, it is exactly the opposite. The stream in question is a favourite spawning ground of salmon, and as a natural consequence a fruitful nursery of parr and smolts, yet they are allowed to be daily gobbled up by gulls. These birds are useless for food, and no one would care to waste cartridges by shooting them, except to protect our salmon and trout fry from their ravages. That salmon, the most delicate food, should in their babyhood be devoured by gulls in our rivers is one of those anomalies which is difficult of explanation. That such a state of things is allowed to exist is a blot on our legislation.

Gulls, especially blackbacks, also do incalculable destruction on our moorlands, where grouse eggs and chicks find their way into their capacious maws. On inland tarns whole broods of young ducks are destroyed by these predatory birds. Yet modern legislation makes it criminal to shoot one at the time they do most mischief!

Grouse and salmon are a valuable asset to Scotland. Both are delicious food; and the protection of gulls, as already said, has a tendency to limit our food supplies. The pursuit of grouse and salmon brings wealthy foreigners and Englishmen to Scotland, and as a consequence much money is circulated and employment given to many. Money is also spent by salmon anglers: of this I can speak from experience. The expense and labour are great; the recompense is hardly noticeable, and frequently nil. My "better half" often reminds me that she could buy salmon much cheaper than it costs me to catch them. Possibly she is right, but then she knows nothing of the excitement and sensation associated with the capture of a salmon. I fear it would require a pen more gifted than mine adequately to describe it.

After smolts have run the gauntlet of their numerous enemies, and having once reached the salt water, all authorities are agreed in testifying to their rapid growth while they remain there. Much

nonsense has, however, been written on the subject. Some authorities affirm that smolts about six ounces in weight, after between two and three months in the sea, have returned to the river as many pounds. Recent investigations and experiments have proved this to be a fallacy, and it is now recognised that smolts remain a twelvemonth in the sea before returning to the river as grilse. Some of them even remain six and eight months longer and ascend as spring salmon. Roughly speaking, the increase in weight of smolts in the sea is about a pound in three months.

Mr Young, in his admirable treatise on salmon-fisheries, directs attention to three salmon marked by the Duke of Atholl on their way to the sea. These fish weighed 10 lb., 11½ lb., and 12½ lb. respectively. They were each marked by a copper-wire and disc the size of a half-penny round their tails; and on their return to the fresh water, six months afterwards, were again captured, when they were found to weigh 17 lb., 18 lb., and 19 lb. respectively. This circumstance, however, should not be accepted as proof that all salmon increase in this proportion while in the salt water, as it is to be inferred that the fish in question were spent fish or "kelts," when interrupted in their passage from the fresh to the salt water.

A singular circumstance, which has never been satisfactorily explained, is, why salmon should ascend certain rivers on the same coast in different months of the year. In some rivers, such as the Tay, the Ness, the Tweed, and others, I believe that salmon ascend every day in the year, unless perhaps after a prolonged drought in summer, when the water is very low. For example, so soon as fishing commences—the Ness on the 2nd of February and the Tay on the 15th January—it is no unusual thing for good sport to be had by trolling with phantoms. Here, as elsewhere, salmon do not rise readily to the fly so early in the season. There are, again, rivers on the same coast, but farther north, where the fish rarely ascend till the month of May. Among these may be mentioned the Alness, and even the Earn, which is a tributary of the Tay. Notwithstanding that the nets are taken off in the middle of August, it is a singular fact that autumn salmon, as a rule, are not to be found pushing their way up the river till into October. So notably is this the case, that the proprietors in the upper reaches on the Earn made an effort to have the time for rod-fishing extended to the end of October. As the result of their success in obtaining an extension of time, it was

found there were more salmon killed above Crieff during the extended period than prior to the 10th, when rod-fishing formerly closed. Possibly the dam at Dupplin may, however, have something to do in preventing the ascent of fish. It is only in high water that the obstruction can be surmounted, and, naturally, in a dry season and the absence of spates, few fish were looked for in the upper waters. A pass was constructed some years ago, but though fish are seen going through, it does not seem to be the success expected. The excellent salmon pools below the dam keep the salmon there until nature forces them to ascend. It is asserted that the mere fact of water rushing over a fall keeps it aerated, which is congenial to fish.

Even in those rivers to which salmon betake themselves early in the spring months, they do not seem to care to ascend towards the upland reaches until the season is somewhat advanced. They appear to be unwilling to face waterfalls or other obstructions until a given period in the season—varying somewhat in different rivers,—when, as if by instinct, they seem to become seized with an impulse to force their way upwards. On the Helmsdale and Shin, it is known almost to a day in the month of April when salmon begin to push their way over the falls. The same holds true in their ascent up the Orchy in Argyllshire. While considerable numbers of them may be found in the months of March and April in the Dalmally Water, it is not till near the end of April they are to be seen fighting their way up the rocky falls into the Inveroran reaches above. The time when they begin to force their way up over rocky falls, provided that the state of the river is favourable, may be predicted with the same accuracy as the return of the swallow or the cuckoo to the district when the winter conditions of temperature have passed.

In the river Ken, in Kirkcudbrightshire, we discover the same law in operation. During the months of May, June, and July the salmon push their way through Loch Ken several miles up the river, and in wet seasons afford good sport during the two latter months. But they are scarcely seen to attempt to force their way over the famous salmon-leap, about half a mile below the old bridge on the Carsphairn road, till about the middle of August. Should the river come down in flood about that time, the salmon may be seen in large numbers, simultaneously urged on by an irresistible instinct, as if vying with each other which should be the first in successfully accomplishing the difficult ascent. The Orchy

and the Ken, be it noted, are both rivers emptying themselves into the ocean on the West Coast, but why they should ascend the falls of the former in April and delay their ascent of the falls in the latter river till August, I confess my inability satisfactorily to explain.

The Borgie, in Sutherlandshire, affords another illustration in point. Large numbers of salmon ascend for about half a dozen miles, but proceed no farther than the falls. The falls pool and the one immediately below it hold many fish, and there they take the fly readily. They do not, however, attempt to surmount the falls till May, after which they are found in Loch Loyal.

The theory of the temperature seems plausible as to why salmon do not ascend to the upper waters, but it does not hold good in all cases. Until we have more general and correct data in support of this theory, it must be treated very much as a speculation. The importance of having the theory of temperature thoroughly tested has now been realised by the Fishery Board. Mr Frank Buckland, who gave a large share of attention to this subject, stated as his opinion that the earliness or lateness when salmon enter rivers depends upon the proportion of mileage to the square mileage of catchment-basin. Mr Archibald Young, late Inspector of Fisheries for Scotland, dissented from this theory, and gave numerous illustrations against its application to Scottish rivers. He pointed to the fact that those rivers that fall into the North Sea and Pentland Firth on the east and north-east of Scotland are early, while those that fall into the Atlantic on the western coast are late rivers. He also pointed to the fact that those rivers flowing into the North Sea are, as a rule, longer in their course, and their temperature consequently warmer, and inferred that there is thus an inducement for the salmon to ascend those rivers earlier than they otherwise would.

Mr Calderwood, who has the advantage of all the scientific investigations of the Fishery Board, says, in 'The Life of the Salmon,' "We are at the present day by no means certain that the real seasonal character of some rivers can be properly interpreted by the existing conditions. Certain rivers are described as late rivers, and have no doubt been found to be late rivers for a very long period; but it is quite possible, and I would venture to say in many cases very probable, that the cause of the late character has nothing whatever to do with the physical conditions of the rivers, but is purely the result of the influence of man in his treatment of the fisheries, and that as the treatment has

continued on the same lines within living memory, so no one has ever known or heard of early runs of fish in those rivers."

It may be noticed that early or spring salmon having once entered fresh water—which they may do even when the river is considerably colder than the sea—pass by the lowest tributaries. Late-running fish, on the other hand, enter the low tributaries and spawn also in the lower reaches of the main river. Mr Calderwood, who has conducted investigations to ascertain actual temperatures, finds also that the spring fish enter the upper tributaries when the temperatures harmonise with the temperature of the main river. In the Tay, for instance, the order is Lyon, Tummel, and the Garry, and fish may be earlier or later in these tributaries as the water temperatures determine. Large and deep lochs are found to be relatively warm, and the rivers which flow from them are naturally of similar thermal conditions. It does not follow, however, that because a river flows out of a large and deep loch it contains early spring fish. The Awe, the Morar, and the Lochy, all West Coast rivers from large and deep lochs, are not so early as, say, the Dee, which has no loch of any size in its course. All the East and North Coast rivers of any size are earlier than the West Coast rivers.

It is stated that, "In a river like the Tweed there is too much netting to allow of the entrance of many springers, or of their passage upwards to safer head waters." While this was being written, it was recorded in February 1920 that two, three, four, five, and six are being captured in a day in the Tweed on many sections above the netting stations. It will thus be seen that the Tweed is not to be despised as an early river, and if nets could be taken off above the tidal reach, it would as a spring river be second to none.

Mr Pennell, in his very admirable work on 'Fishing,' seems to favour the theory of temperature. Still he is careful not to commit himself without reserve. He states it as "an indubitable fact that snow-water prevents salmon from running up even the milder stream of the Eden." I am not disposed to call this statement in question, but what of the Tay, Dee, and Ness? There are no rivers in Scotland where greater numbers of heavy salmon are to be found during the winter months pushing their way up into the lochs when the surrounding mountains are clad with snow down to the water's edge. In point of fact, it is only after the snow disappears from the mountains that the fishing on the lochs begins to fall off. How salmon ascend the

Eden in great numbers and not the Esk and Annan in spring, the mouths of these rivers being only a few miles apart in the same estuary, is difficult of explanation. It would be interesting to know when these large spring fish, which ascend the rivers to the lochs referred to, last deposited their spawn; whether they spawn every year, or how often during their lives. It is said the age of salmon can now be told by their scales, and most anglers would be pleased to learn the age a fish would attain if left to die a natural death. We know that loch-trout are long-lived, but it is to be feared that few salmon get the chance.

Large spring salmon are captured in Lochs Tay, Ness, and Oich, but as the mode of fishing is by trolling with phantoms, this species of sport does not commend itself to every one. The cold is sometimes intense, and when sitting all day in a boat exposed to the elements, much discomfort has necessarily to be put up with. Here a day's fishing on Loch Ness may be worth recalling. Leaving Edinburgh with an early train, in due course I arrived at Inverness, where I got the motor-bus to Drumnadrochit. The following morning being the 2nd of February, the opening day on Loch Ness, accompanied by "Johnnie," the gillie, we wended our way to Temple pier. "Johnnie," who has had long experience on the loch, said that, as a strong breeze was blowing from the west, our best chance would be to cross to the other side and drift down to the east as far as Dores Bay. Starting accordingly to row across, a distance of two miles, this being the broadest part of the loch, we got on fairly well till we passed the ruins of Urquhart Castle. This ancient relic of feudalism stands on an elevated position overlooking Loch Ness, and is an object of attraction to tourists and all who travel on the Caledonian Canal. Here we encountered the full force of the gale sweeping down between the mountains from Fort Augustus. In such a small boat it was far from being a pleasant sail, as huge waves frequently broke and drenched us, so that but for waterproofs we would have been soaked to the skin. It was interesting, however, to note how skilfully "Johnnie" manipulated the boat, quickly turning the bow to meet an advancing wave of unusual size. As we neared the shore I let out the lines of three rods, one on each side and the third fair behind the boat. On we then drifted, "Johnnie" backing with the oars when a gust of wind caused us to go too fast. This species of

sport is frequently denounced as monotonous. While admitting it is not in the very least to be compared to fly-fishing on a river, I quite enjoyed it. I was interested in noting the mountain-ranges that flank the glen, sloping from the ridge at an altitude of a thousand feet to the water's edge, some of them finely wooded. These, with the surrounding mountains, are the home of the eagle and the stag, the mountain-fox and the wild-cat. Well might the view be characterised as the

"Land of brown heath and shaggy wood,
Land of the mountain and the flood."

The red colour of much of the rock gave the wild scenery a beautiful and picturesque appearance. The natural woods of Aldourie hug the shore, and I remarked that they seemed a likely haunt of woodcock. I was meditating that, if I were one of a shooting party there after 'cock, I should prefer to be in a boat alongside, slightly in advance of the beaters, as these birds when flushed generally fly out into the open. My reverie was quickly broken by "Johnnie" hurriedly shouting, "There he is!" and immediately the screaming of the reel gave indications that the object of our pursuit was endeavouring to disentangle himself from the treacherous bait. The tossing of the boat by the waves rendered it dangerous to stand up, so, kneeling down, the struggle began—the struggle between the brute force of a strong fish in its native element, that element, too, giving him long odds in his favour in consequence of the difficulty of managing the boat in an increasing gale. For a time the struggle went on satisfactorily. The fish, after the first rush, coursed backwards and forwards with becoming dignity, keeping deep down in the water, until, as I thought, he began to feel the premonitions of failing strength. In this, however, I was mistaken, as, though deep down, he suddenly made a rush towards the boat, quicker than I could wind in, which caused the line to slacken. "Johnnie," who by this time had the other two lines wound up, was equal to the occasion, and pulled in the opposite direction, till again I had a strain upon the fish. Another mad run towards the centre of the loch took out sixty or seventy yards of line, and we had no alternative but to follow. The mad rush of a salmon, with the strain from the rod, is as tiresome for the fish as for the fisher, whose task it is to follow and wind up the line as quickly as possible. A gust of wind came down the loch, and caused huge waves to

break and splash into the boat. For a time it looked as if we would be swamped, but even that would have seemed a trifle compared with the loss of the fish. Another rush, fortunately back towards the shore, and when we got wound up and near him, he suddenly showed himself. The silver sheen of a large fish, and the slightly roseate hues of his back and shoulders, indicated his recent arrival from the Moray Firth. He was a game fish and fought well, but sooner or later he had to give in. His rushes now grew feebler and feebler, and by application of the reel the line gradually grew shorter, till mysterious whirlpools appeared through the waves as he was involuntarily pulled towards the boat. "Johnnie" was ready with the gaff, but on seeing him the fish made another dash into the depths. It was his last effort. His strength was spent, and he now suffered himself to be guided passively to the boat, where "Johnnie," putting the clip over his back, lifted him in in triumph, a fine clean salmon, twenty-five pounds weight.

Two other fish were hooked, but, being kelts, they were more easily brought to the boat. They were lifted in with a landing-net, the hooks taken out as humanely as possible from their mouths, and the fish thrown overboard into their native element. Having drifted down to Dores Bay, and as it was impossible to row the boat back against the wind and waves, we left it there and walked to Aldourie Pier, where we got the afternoon steamer *en route* for Fort Augustus, and got quickly back to Drumnadrochit.

On the southern rivers on the East Coast of Scotland, including the Tweed, while salmon may be said to enter them at all seasons, few ascend to the upper reaches until the autumn, even when the river is in flood, and when, of course, they cannot be intercepted by nets. In writing of the Tweed as the habitat of salmon, it is a singular circumstance that they rarely enter the Whiteadder, although it empties itself into the Tweed over a shingly bed only a few miles from Berwick. It is far otherwise with bull-trout, locally called sea-trout, which ascend the Whiteadder in great numbers, many of them of large size, during the autumn and winter months. This peculiarity has puzzled anglers and naturalists for many long years, but as yet no satisfactory explanation has been arrived at.

Do salmon feed in fresh water? is a question which has proved a fruitful source of controversy. It does not seem surprising that this should be disputed by not a few, including even practical anglers.

Most people would expect that the simple fact of salmon being caught in large numbers in rivers and lochs by hooks baited with worm, minnow, shrimp, prawn, sand-eels, &c., should settle this disputed point; but not so. The circumstance of the stomachs of salmon being almost invariably empty when caught is urged as a reason for rejecting what appears to be an obvious truth. It is a notable fact, which must be patent to the most observant anglers, that the fish species possess a remarkable power of disgorging their food in the most summary fashion. Who has not observed, when fishing with worm for brown trout, or in trolling in lochs, that, after a fish has been hooked, the bait has been sent spinning two and three feet up the line as if fired by a pocket pistol? I have no desire to speak authoritatively, but may it not be the case, when salmon get into trouble, they from some unexplained cause immediately disgorge their food? I have often thought of this when catering for my pet eagles, hawks, and owls. When in a difficulty in procuring food, I have occasionally had recourse to shooting gulls behind a plough. Should one fall with a broken wing or otherwise wounded, it immediately disgorges the worms on which it had recently fed. Birds of prey do not like gulls, and will only devour them when compelled by hunger. Why this peculiarity of disgorging on the part of gulls? May salmon not do the same? I offer no explanation, but think it worthy the attention of those who affirm that salmon do not feed in fresh water. On one occasion when staying with my old friend John Thompson, at Inveraray, he asked the Duke of Argyll's permission for me to fish during my sojourn in the district, which was readily acceded to. For three days I whipped the Aray with all kinds of flies, but without success. On my last day I adopted different tactics. I dug up a quantity of worms and commenced operations at a fall called the "Miller's Linn." Baiting a hook with several worms, I dropped it at my feet into the surging water immediately below the fall. It was carried down by the current, but suddenly stopped. Waiting a short time to let it gorge, I struck, and found a fish was hooked. Getting it out at the bottom of the pool, I again started at the fall, and immediately hooked another. This went on till I had fourteen fish, averaging about seven pounds, when Mr Thompson arrived upon the scene. Holding up his hands in amazement, he exclaimed, "The like of this was never done before!" Strange as it may appear, I have been twice there since, the water the

same size, salmon continually attempting to ascend the falls exactly as before, and though I fished with worm in the identical same manner, yet I never again hooked a fish. How this is to be explained I leave others to judge; but it is difficult to believe that fourteen salmon, one after the other, gulping down worms, were not feeding.

Scientists assert that not only is the stomach invariably empty, but the cells lining the intestines are also empty, and a fish could not disgorge food particles from these. On the other hand, in May 1919, Mr Munro, gamekeeper at Glencarron, when fishing with worm in the river Carron about a dozen miles up from the sea, killed a salmon. As it was the first for the season, he sent it to my friend Mr C. R. Manners, M.Inst.C.E., Inverness, the agent for the estate. On cleaning it prior to cooking, it was discovered that its stomach was full of maggots. Many deer died during the protracted wintry weather into late spring, and some carcasses were brought down by floods and washed to the sides. It was from these, it was supposed, the maggots came. Query, was this fish feeding?

The instinct of salmon and sea-trout is to push their way steadily up the river, keeping generally in easy water, and avoiding as much as possible strong currents. When rivers are swollen with continuous heavy rains, they are often seen from the embankment. Their instinct not being such as to enable them to anticipate the shallowness and contracted dimensions of the river after the augmented current has run its course, they are naturally subjected to extensive slaughter by shepherds, ploughmen, and others engaged in factories and workshops in those villages on the side of the river. The number of fish killed by these midnight marauders, who, with torches, "leisters," and other weapons, "burn the water," is simply incredible. In some of the tributaries of the Tweed it is generally supposed that few fish which ascend to spawn ever get down again. In point of fact, in some of the agricultural and pastoral districts of Peeblesshire spearing by torch-light is looked upon as quite fair, and its prevention regarded as tyrannical and unjust. Hence the watchers, or "water-bailiffs," as they are called, are regarded by the rural population as persons engaged in a mean and despicable vocation, and are cut off from all countenance and sympathy by those in the district—so much so that in many cases it is with the greatest difficulty they can find lodgings.

I once fell in with a band of poachers "burning" the Lyne be-

tween West Linton and Romanno Bridge. I got off the last train at Broomlee Station, and as the road runs parallel with the river for about half a mile, I could not help being interested, and for a time watched the operations. Two men were in the river, one carrying the torch and the other a long-handled "leister," while other two with sacks walked on each side of the river carrying the spoil. Occasionally the light became stationary as a fish was seen on the spawning-bed, when it was quickly hoisted in the air, wriggling on the uplifted spear, forked to the nearest bank, knocked on the head, and put into the sack. Twenty-five fish were killed in the short distance of about half a mile, but as far as I could judge they were mostly sea-trout, as they did not appear to be more than five, six, or seven pounds. Though not in accordance with my ideas of right and wrong, I entered into the fun, though I was careful to keep on the road. It is, however, sad to see the destruction of "the goose that lays the golden eggs," of fish obeying the dictates of nature in perpetuating their species.

As in the case of all deeds of lawlessness, this system of river-poaching leads often to dissolute, and not unfrequently to dishonest, habits. It is no unusual thing for farmers to have their barns invaded and empty sacks carried off preparatory to such exploits; while the sheep-farmer has his tar-barrel often partially emptied as a contribution to the "night's fun," in which so many of our rural and pastoral population are ever ready to indulge, regardless of the heavy penalties attached to such illegal proceedings. It is here we discover the demoralising influence of river-poaching, for even where private property is appropriated in order to contribute to the illegal enjoyment, the idea of its involving the element of dishonesty is not recognised.

The dexterity with which those experienced in the use of the leister can spear the fish is remarkable. Some of them, with a rope attached to the "hoe" of the leister, can cast it into the river, in deep water, at a considerable distance, and affix it in the body of the fish with unerring accuracy.

A somewhat amusing case of poaching came to light, as such cases generally do, by poachers themselves boasting of how they outwitted the bailiffs. In this case, the watchers lodged with a shepherd whose daughter was a Sunday-school teacher and distributed tracts to people in the neighbourhood. When the river had fallen after a flood, and was well stocked with new-run fish, the watchers had to look out during

the day as well as at night. After being out the most part of the day, they naturally took a few hours' rest when they went in at dusk. The fiery cross has not gone the rounds to gather the clansmen together for many a long, long day, but still there are other ways and means for having this accomplished. When a favourable opportunity offered, the girl was despatched to distribute 'Life and Work.' The recipients knew the plot, had everything ready, and in a couple of hours many fish were slaughtered.

How salmon are to be protected during the spawning season in the Tweed and its tributaries is a problem which has long occupied the attention of the Tweed Commissioners; but notwithstanding their several appeals to the Legislature and the severity of the penalties imposed, they have signally failed to accomplish their end. As an illustration of what is meant, a recent article in the 'Scotsman' may be cited: "With the salmon on the run from the sea to the upper reaches of the rivers, there is commencing an annual spectacle which, according to the boast of prominent townsmen in Selkirk, people come a hundred miles to see. In the pools below the caul, close to the town, the fish gather in large numbers, and under suitable conditions there is an impressive procession of them up the foaming shallow water of the sloping caul. Spectators, on any afternoon when the fish are busy, gather on either bank to watch their attempts to surmount the barrier. From the foam-covered water at the bottom of the caul, every now and then a fish, a dark-brown form as seen against the pure white of the foam, leaps up the slope, works its way slowly ahead torpedo-like, the tail going as rapidly as a motor-boat propeller. If it is a strong fish, and holds a straight course, it may get over the summit into the deep water beyond. This seldom happens. Usually, as it approaches the goal, the fish fails to hold out in its effort; or, turning slightly to one side, presents a broader front to the fast-flowing water, and is swept back into the pool below. Catching the salmon furnishes a sport peculiar to Selkirk and the upper reaches of the Tweed. It has been called 'snigging,' and has been skilfully reduced to a science. At the caul referred to, fishers are frequently engaged on both banks, so close together that only care and skill prevent their lines entangling. The line is cast far across the stream. No gut is used. Steel wire is the general substitute. A large salmon-fly is attached to it and pulled in successive jerks towards the fisher. Where fish are lying thick in a pool,

it is easy to see how the hook can be jerked into one. Every now and then a fish is hooked, and after a brief struggle a resisting fish would be hauled up on the shingle. The fish taken are variously hooked, sometimes far back towards the tail. One rod frequently catches quite a number."

As it is chiefly on Saturday afternoons, after the mills close, that the great numbers of fishers are seen at the caul, surely a pass could be arranged in the centre of the river by which fish could get through. This suggestion I beg to press upon the attention of the Tweed Commissioners.

An amusing case was tried a few years ago before the Sheriff at Duns. A boy—a clergyman's son—was fishing with a large "fly," on which was a pair of small triple hooks, certainly not so formidable as large-sized double hooks. Two water-bailiffs seized the gut-line and "fly" from the boy and cited him and the boatman for illegal fishing. Mr Hardy, of Alnwick, who manufactured the fly, defended the case, which was argued at great length. The witnesses for the prosecution asserted it was not a salmon-fly, but were unable to answer the question, "What is a salmon-fly?" The Sheriff ruled that he had fished the greater part of his life, and affirmed it was a "fly," giving the defence modified expenses. Having fished with somewhat similar hooks on the Tay, I was cited as a witness for the defence, and was exceedingly sorry to see such a trumpery case taken to court, when fish are taken out illegally by the hundred in the higher reaches of the river.

After a severe frost, great destruction is caused to salmon life in the breaking-up of the ice by their being jammed among the floating masses. The numbers, however, that are destroyed in this manner are trifling compared to those which succumb to a mysterious epidemic designated the "salmon disease." The extent to which salmon have suffered from this cause is most vexatious. The ravages of this dreadful malady in the Tweed and its tributaries sometimes baffle description. I have known 14,627 taken from the river, or washed ashore, in one year, and a total in four years of 27,616.

Walking on the banks of the river in the spring, it was a sad spectacle to see the immense numbers of large fish lying in shallow water, victims of this horrid pestilence, all more or less covered by the loathsome fungus. Many of them were evidently suffering great pain, the disease having, like a cancer, eaten right into the head of some of

those worst affected. Touching some of those with the point of a stick, they would, for a few seconds, make a successful effort to get into deep water; but in a short time they were again to be seen floating, weak and sickly, into the ebb still water by the side of the bank.

I do not pretend to be able to explain either the origin or nature of this loathsome pestilence amongst salmon. It makes its first appearance by the fish becoming spotted with whitish, mouldy-looking blotches, commencing frequently about the head, and spreading rapidly—if the fish should survive—till it covers wellnigh the whole body.

That the salmon disease is contagious is beyond doubt; and that, as a general rule, it proves fatal is also incontrovertible.

The theories set up as explanatory of the cause of the salmon disease are as numerous as those to which the grouse disease has been attributed; but up to the present time there has, in my opinion, been no satisfactory solution of this controverted subject. There are those who confidently affirm that it finds its origin in the pollution of rivers by the foul refuse issuing from the woollen manufactories which mark the banks of the Tweed and its tributaries. This theory seems doubtless a most plausible and a reasonable one, but, unfortunately for its advocates, we find the prevalence of salmon disease—perhaps not to the same extent—in those rivers where manufactories are unknown. Others, again, trace it to overstocking and too vigilant protection of our salmon rivers. This theory also breaks down when we discover that in those rivers where salmon are by no means plentiful they are not exempt from the malady. There are some who affirm that salmon disease has its origin in wounds being inflicted by “kippers” on each other during the spawning season. No one who has witnessed the fierce encounters which take place between the male fish in the neighbourhood of the spawning beds will doubt that the wounds received are often both numerous and serious, and that when the skin is thus broken and torn the conditions are most favourable for the development of the fungus. At the same time, there are circumstances which seem to refute this theory also. Since the subject became a matter of close observation and study, it has been found that the fungus has occasionally made its appearance before the spawning season had commenced, while the female fish are not exempt from its incursions. No doubt the contagious character of the disease may to some extent account for the latter circumstance, but it affords no explanation for its appearance in the former case. That the

lacerated tissue may, and does, predispose to the disease, and aggravate its virulence, may easily be believed; but that it constitutes its origin, I regard as inadmissible.

Other writers upon the subject tell us that the disease consists in a destruction of tissue through the existence of myriads of parasites, and in the liver becoming soft and friable by disease. All these peculiarities are no doubt features of the malady; in short, they are simply results. But the question still remains to be answered, Why those diseased tissues, those numerous parasites, and diseased livers? Until these questions are answered, it need not be pointed out that we are no nearer the solution of this mysterious problem.

While several of the more immediate or secondary causes of salmon disease have doubtless been touched upon, the remote or originating cause must be sought for somewhere else. In so far as the researches of scientific inquiry are concerned, it seems to pertain to that class of mysterious calamities which periodically overtake the animal and vegetable kingdoms, and which have hitherto proved a source of interesting but endless speculation.

I imagine that one of the causes of this mysterious disease among salmon is to be found in the circumstance of their being involuntarily detained in our fresh-water pools, when by physical law they ought to have found their way into the briny deep. The salmon, from its nature, habits, and instincts is a migratory fish. As a rule, they find their way into the fresh water, and ascend our rivers for a purpose—viz., that of perpetuating their species—as we have no evidence that they deposit their spawn in the salt water. It seems at once natural and befitting, that after they have deposited their spawn and become physically spent and weakened, they should again return to the ocean, where they rapidly become strong and plump, and assume their clear and beautiful silvery hue. When by prolonged drought, intensified by hard black frosts, the rivers become contracted by diminished current, fish are necessarily compelled to fall back into the deep pools; and when it is considered that they are sometimes detained in these circumstances for many weeks together, and become enfeebled in condition, it must appear that all their surroundings are most unfavourable, and eminently calculated to prolong debility and invite disease. I do not presume to dogmatise upon a subject which has baffled the most distinguished authorities, and left royal commissioners in a state of helpless uncertainty; but I cannot

divest my mind of the deep-rooted conviction, that could some means be discovered for carrying off into salt water those salmon which ascend our rivers after they had spawned, thousands of those which remain to sicken and die would be saved by the operation of a law essential to their physical wellbeing, but which, for the reasons indicated, it is impossible for the fish, guided by natural instinct, to comply with. Illustrative of this, the late Mr Stirling, Assistant Curator of the Anatomical Department of the University of Edinburgh, had a kelt covered with the fungus taken from the river Tweed, and transferred to the sea, where he had it secured in a cage. During its imprisonment it very naturally became thin and emaciated, but entirely recovered from the skin disease. Might I suggest a trial of a brine-bath made with rock-salt, net and rub the fish in it, or leave them in it for a time, then mark them?

Mr Hume Patterson, however, on the subject of salmon disease, says the real cause is the *bacillus salmonis pestis*, the organism of which is found in rivers; and though sea-water kills the fungus, it does not kill the bacillus.¹ I should much like to see a number of diseased fish caught in the lower reaches of the Tweed marked in order to ascertain if any of them recover.

While incredible numbers fall victims to disease and are otherwise destroyed when in fresh water, the quantities that are lost in their wanderings in the sea must also be very great. A large number have been found in the stomach of a shark. Every net-fisher is familiar with the deep gashes inflicted on salmon which have escaped from the jaws of a seal. While fishing in the Tweed, in the cast called "The Putt," immediately above Kelso, a salmon took my fly—a white wing—which, after landing, I discovered to be terribly mauled by a seal. What surprised me was, from the nature of the wounds, that it took a fly at all, which in a measure corroborated the view that fish do not feel pain, at least to the same extent that we mortals do. Certainly no human being would have been out of bed with similar wounds on his body. I once had an admirable opportunity of observing the habits of seals, when I arrived at the conclusion that they act in concert when in pursuit of their prey. It was in Lauria Bay, in Hoy, which is one of the larger islands of the Orcadian Archipelago. Fishing for trout in the sea is

¹ Fishery Board for Scotland, 1903.

much practised there, and an English gentleman spent his holiday every year to prosecute this species of sport. While grouse-shooting one day I entered into conversation with him. He had captured some splendid sea-trout up to six pounds, but as a colony of seals had come into the bay, fish had ceased to take his lure. He pointed to a spot where they frequently went ashore to rest, and requested me to try and shoot one or two so as to scare them away, as fishing was out of the question so long as they were in the neighbourhood. Accordingly the following day I repaired to the place with my rifle. The mountain-side was very steep above the spot where the seals were in the habit of landing, and I cautiously descended, scanning the shore with the telescope. No seals, however, were to be seen, and I sat down and with the glass surveyed the warships in Scapa Flow. In a short time the head of a seal appeared above the water far out in the bay, and on fixing the glass on it I discovered there were quite a number of them swimming rapidly, one, and sometimes several, occasionally putting up their heads. On they came, and when they got opposite where I sat the water was more shallow, with a white sandy bottom. There were a goodly number of them. From my position I could see them like black shadows on the white bottom. They were spread out like a band of gillies driving grouse forward to the butts. Beyond doubt they were acting in concert and had a common object in view. Seals are somewhat fastidious in their taste, and prefer salmon or trout to the coarser sea-fish. I could not help thinking that, like a shepherd with the aid of his dogs forcing sheep into a corner in order to catch one, the seals were driving salmon for a similar purpose. Whether they succeeded in catching any I could not say, but on nearing the land they halted and discontinued what looked like their military manœuvres, occasionally here and there putting up their heads all over the bay within a few hundred yards' distance. Some of them came close in, apparently making for the shore, but for an intervening ridge could not be seen. By getting to the ridge an easy shot would be got, provided any of them had landed. It was, however, difficult to get down under the gaze of so many eyes, but by becoming motionless when a head appeared, I eventually reached the ridge. Sure enough a number had come ashore, and a very large light-coloured one attracted attention. As they had no suspicion of danger, it was most interesting to watch their movements. The big one lay like a log of wood on a bed of seaweed which covered the rock, and periodically

kept moving his head from side to side. Watching him for a time, I eventually fired, and the expanding bullet did its deadly work. The violent struggles of the others to wriggle into the water were most amusing. After getting a hundred yards away from the shore, they kept putting up their heads, and as my object was to scare them away, I kept firing whenever a head appeared, till they were quite a quarter of a mile distant. One at least was killed, as, though the head disappeared, the water became smooth round the spot from blood and oil coming to the surface. The large one was casting his hair, which accounted for his light colour. A dissection of the stomach revealed that he had been feeding on fish of the salmon kind.

In the afternoon the fish had evidently got over their fright, as the gentleman referred to had excellent sport and begged my acceptance of a couple of sea-trout, one six and the other four pounds in weight. It was clear, however, that the fish had taken refuge from their enemies in the great profusion of seaweed, as it was near this that the angler was successful.

Being brought up on Tweedside, I recollect in my boyhood of an experiment being tried, by netting between five and six hundred kelts in that river, at the mouth of the Whiteadder, a few miles above Berwick. They were marked with wire, in order that they might be recognised when they again ascended the river. Not one of them was ever seen or heard of in the Tweed; though one of them was caught near Yarmouth, another near Tynemouth, and part of one, with the wire attached, was found in the stomach of a cod caught at Eyemouth.

Interesting as the natural history and habits of the salmon tribe may prove to some, it is only when we come to deal with this king of fish as the object of the angler's solicitude that the enthusiasm of all interested in piscatorial pursuits becomes excited. As has been seen in the chapter on trout-fishing, there is a healthy excitement associated with the use of the rod, but more especially with the use of the fly, whether upon loch or river.

The longevity of salmon is a subject which in late years has attracted much attention, and created considerable interest among disciples of Izaak Walton. It is stated that between eight and nine years is the duration of the life of salmon before they succumb to senile decay. It is somewhat difficult to accept this, in view of the fact that trout have been known to live, even in artificial conditions, to considerably

over three times that period. By marking smolts, however, capturing them as grilse, and again as salmon, and by photographic enlargement of the scales, much information has been acquired. The lines on the scales are exceedingly interesting, and it is to be hoped that investigations will be further pursued. Some authorities regard the rings on the scales as positive proof of the age of the fish; but rings on the scales, like the rings of Saturn, are difficult to read or to understand, and sometimes scales are got which upset the theories that have been promulgated. A salmon caught in the Tay at Grantully in February, weighing $47\frac{1}{2}$ lb., was examined by an expert, who made it out to be six years old. As grilse, five or six pounds weight, we know to be three years old, or spring salmon ascending a river for the first time, four years old. Spring salmon in the Tay, usually about twenty pounds, which have not previously spawned, are, we are informed, judging from the scale markings, to be five years old; and to attain the weight of $47\frac{1}{2}$ lb. in another year is, to say the least of it, very remarkable. Most very large salmon which ascend our rivers are males, and like higher animals, are able to perpetuate their species longer than females, so that the latter may remain in salt water beyond our ken.

In these days of social reform—the creation of small holdings, the suggestion not to leave a corner of ground uncultivated, and everything done that can be done to further the food supplies of the country—fish, to my mind, has not received a fair share of attention. Fish is excellent food, and every sheet of water, down to the size of a mill-pond, should at least contain trout. In almost every case food costs money to produce. With fish it is otherwise, as they live, move, and have their being independent of man. At the same time, care should be taken that salmon especially are fostered, encouraged, and protected during the breeding season. They cost nothing, destroy nothing, yet afford the richest, most delicate, and substantial food which this or any country can produce.

In addition to preserving salmon, much can be done to improve many of our smaller streams in Scotland. I have known a brawling burn converted, by putting in dams and so making resting-places, into a first-class salmon or sea-trout river. When sea-fish are known to ascend a stream, big stones should be removed out of suitable places, and put into a shallow below a deep part, so as to constitute a favourite resting-place for the king of fish. Sometimes it is necessary to utilise

bags containing a mixture of sand, gravel, and cement, as this can be beaten into places which is not easily stopped up by a stone. An open place or "pass" in the centre of the dam-dike, so that fish can easily ascend, is essential. It is desirable to build the dam a suitable height, in order to make the water a sufficient depth to constitute a resting-place for salmon. Cement must be used, otherwise the dam may be washed away by mountain torrents. It must, of course, be done at low summer levels, and care taken not to dam places where gravel is likely to be washed down and lodge at the back of it. The Borgie in Sutherlandshire, and Lussa in Jura, are grand illustrations in point. The former is now one of the best spring rivers in Scotland, and fetches a large rent, the fish being strong, valiant, and fresh from the sea. Both are small streams, and can only be characterised as spate rivers; still salmon and sea-trout are caught in many of the artificial pools as well as in the loch at the head. A great deal could be done to improve many of our smaller streams, but it means money, though many improvements could be made by intelligent keepers.

In my young days I spent part of the year at Dalnaspidal, in Perthshire, and for seven miles knew every pool in the river Garry. Many a weary hour I whipped them over with flies, but with practically no success. I discovered when the water was low, with the sun shining, that no fish could be seen in the pools near hand, which I thought peculiar. None of them, however, were very deep; but about three miles down from the lodge there is a deep rocky pool which always contained fish, and it became apparent that they, if farther up, fall back to this deep one as a haven of refuge. After casting over it one day, I sat down on the bank for a time. Without any object I threw a small stone into the pool, and to my surprise my retriever plunged in and dived amid the ebullitions caused by the rushing water into the pool. I was much surprised, as I had no idea the dog would do such a thing; but my surprise was greater when about a dozen salmon rushed out of the pool, frequently showing themselves as they splashed upwards over miniature rocky waterfalls in wild excitement. No doubt they thought the dog was their natural enemy, the otter. I could not help thinking if I only had had my gun I would not have gone home with an empty creel. Next morning at peep of day, with the barrels of my gun in one inside pocket, and the stock

in the other, the fishing-rod over my shoulder, and the dog at my heel, I wended my way to the pool in question. Throwing in a stone at the same spot, in went "Byron" and dived as before. It was disappointing, however, that there was only one fish, which I shot. What became of the number that were there the day previous it is impossible to say, but they had evidently got a scare. I was of opinion at the time that the fish killed had only come into the pool the night previous, and that the others had probably ascended to the loch. Rain came on, and the river was in flood for some days; but when it got low I tried it again, and next time got a couple. Several times often one was secured, and frequently none. I was regarded as the best fisher, and the only one that could catch salmon. One night, however, at dinner, the late Duchess of Montrose got a pellet of No. 6 shot in her fish, and the secret was out. I discovered that shot passed right through, but on this occasion it had evidently been intercepted by the bone. Next morning I was sent for, and my dear old master said, "Oh, Speedy, what fly did you catch that salmon with yesterday?" I saw by the smile on his face that the secret was out, and I told him exactly how I managed it. He was very proud of his dog, and said that in all his sporting career he had never known of any one fishing for salmon with dog and gun.

In all my youthful frolics, and they were very many, this episode is one I always reflect upon with amusement. I have often wondered what my friend, the late Mr Lumsden, inspector of the Tay fisheries, would have said had he caught me indulging in this sporting, but unsportsmanlike manner of fishing. I have never had another dog that would dive.

When yellow trout are rising freely and in earnest, there is an interest and excitement experienced even by those who are cool and callous amid the affairs of everyday life. When sea-trout are rising greedily, which is generally the case after a flood, the enjoyment is greatly enhanced. But the pleasurable sensation of trout-fishing of any kind dwindles into insignificance when contrasted with that of salmon-fishing under favourable conditions.

If on a good water, and under the directions of a fisherman, an amateur may succeed in killing several in his first salmon-fishing expedition. In point of fact, I have frequently seen a novice more successful in a day's fishing than an expert, he having the luck to get

his fly over a taking fish. There are certain spots in the bed of every river which salmon, either for convenience or concealment, use as stages or resting-places in their progress upwards, and where they are generally to be found—for as one proceeds onward, or is picked off by net or line, another, led by the same instinct, advances to take its place. These spots are well known to those acquainted with the stream, and a person accustomed to fish it will tell you where the fish will show himself and take the fly. But put the amateur on a river with which he is unacquainted, and where he is left entirely to his own judgment, and the chances are that he fails in killing a single fish. Day after day he may cast industriously, and return home disappointed; but a rise or two encourages him to persevere, and if at last he is rewarded by landing a salmon, he is made a fisher for life.

There are many contingencies between the hooking and the landing of a salmon. There is first the risk of its getting rid of the hook without any violent action on its part, or any negligence or mistake on the part of the angler. There are few things more provoking, after fishing industriously for hours, than to succeed in raising a fish and have it on only for a few minutes. This will often occur with the very best and most skilful anglers, and can only be accounted for by the line being allowed to slacken or the fish being slightly hooked. Of course this latter explanation only will apply in the case of experienced anglers, as there is nothing they will be more careful to guard against than the line being allowed to slacken after the fish has been struck.

In many cases when a fish is only on for a few seconds, the angler may not have been sufficiently prompt in sending home the hook the moment he feels that the fish has seized the fly. The importance of attending to this hint will be apparent when it is kept in mind that, as soon as the fly has been seized, the jaws of the fish close, but on discovering its mistake they are instantly relaxed, in order that the fly may be ejected from the mouth. To strike, therefore, too late is simply in many cases to draw the hook out of the mouth, or to fix it in the soft or fleshy part at either side, when, after being in for a brief space, the risk of the hook tearing out is very great. Another cause, and possibly the main one, of so many fish being lost, is that the point of the hook catches on to the bony structure of the mouth, so that the barb does not penetrate, and whenever the position of the hook is shifted by the fish turning over or shaking its head, it drops out. There are,

no doubt, many cases—I am inclined to think most cases—when the salmon hooks itself. I have frequently been admiring a kingfisher, or other bird, or thinking of something else, when a wrench at the rod, an angry protest from the reel, and whizz-z-z away went the line across the river, and a new-run salmon, clear as a silver coin fresh from the mint, leapt in the air a couple of feet above the surface of its native element, violently shaking its head in its endeavours to disentangle itself from the hook. In such cases the fish firmly hooks itself, and the most inexperienced will run no risk from the cause indicated. In angling, as in everything else, in order to be successful, intelligence and discrimination are necessary. While many salmon are lost by the angler being too dilatory in striking, there are perhaps as many lost by striking too precipitately. Why this seeming inconsistency is a question which few have cared to investigate, and yet there is no subject a proper understanding of which will more certainly prevent disappointment. Every observant angler must have perceived that there are certain salmon which will dart—trout-like—eagerly at the fly, while others again are slow and sluggish in their movements, as if it were a matter of indifference whether they seize it or not. In the former case the fish are generally new-run, and seem active and lively in their enjoyment of the fresh water. It is in these circumstances that delay in striking ought to be guarded against. So soon as the fish has fairly turned his head downwards towards the bottom, then is the time to strike, and unless he may have missed the fly altogether, his being hooked is all but a certainty. Those salmon, again, which rise slow and sluggish and fall short of the fly are very generally missed. Indeed, the best way of securing them is by declining to strike altogether and allowing them to hook themselves. The fish which thus act have, with rare exceptions, been for a considerable time in deep fresh-water pools, and have lost much of their buoyancy since leaving the salt water. The accuracy of this observation is attested by their dark colour, and by the absence of that beautiful symmetry and silvery appearance so peculiar to the new-run salmon.

Most people would think this advice in angling for salmon in the circumstances here indicated would be easily acted upon. To those who actually endeavour to practise it, it will prove otherwise. In the excitement of the moment, when the fish shows himself, and in the eagerness to “have him on,” the natural and irresistible impulse is to strike. No

one knew this better than Tom Purdie, the distinguished Tweed salmon-fisher. Notwithstanding his lifelong experience, and knowing well the almost universal mistake committed in dealing with salmon of this description, he was not ashamed to confess that this was one of the lessons he could preach but was unable to practise. In relating to Mr Scrope an interesting incident of his angling for a large salmon in the Tweed, he stated that he had risen the fish for three successive days, but that he always rose short. Realising his own weakness and incapacity to delay striking, he adds that when the fly was nearing the spot where the fish lay, "I keepit my een hard closed, until I fand as giff I had catched the branch of an ash-tree swingin' and sobbin' in a storm o' wind. Ye needna doot I opened my een. An' what think ye was the sawmon about?—turnin' and rowin' doon the tap o' the water, ower him and ower him, as ye hae seen a hempie o' a callant row doon a green brae-side."¹

Another contingency which ought to be guarded against in salmon-fishing is the breaking of the cast, and in some cases the more formidable part of the tackle. The danger here pointed out is so obvious that it is surprising it should not be uniformly guarded against. Still, true it is that many anglers of experience, as well as those who have no experience whatever, and who are consequently more excusable, lose fish from inattention to this point. There are several details here which must be looked at. There is, first, the small eye, or the piece of gut which may be attached to the hook, which ought every time it is used to be carefully examined, while the cast ought to be subjected to no less careful scrutiny. In windy weather it is necessary to look at the cast every time a pool is fished, as it often happens that a knot, or perhaps two, will be found on the cast caused by a swirling wind. These little matters ought to be specially attended to at the commencement of the season; and when any dubiety exists as to their efficiency, the tackle of the former season should be remorselessly cast aside.

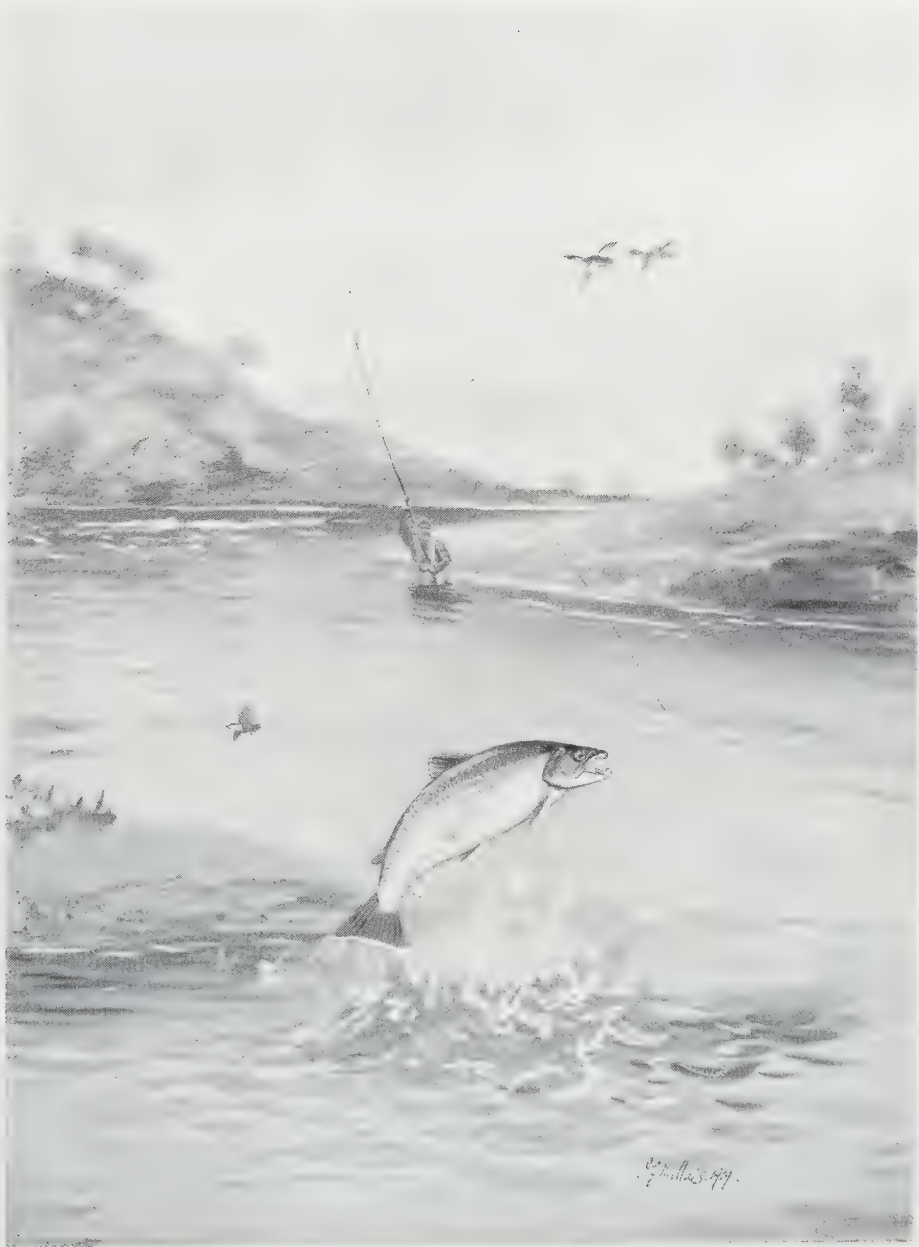
The danger from imperfect tackle is not confined to the hooks or gut-cast. There is equal danger to be apprehended from the dressed line upon the reel. As the modern tapered salmon line is generally 40 yards in length, it is safest to pull it all out; the remainder of the line, being made of silk or flax, is not so liable to harm. As an invariable

¹ 'Days and Nights of Salmon-fishing,' p. 158.

rule to be attended to on *every occasion*, 20 or 30 yards of this line—or as much of it as has been exposed to the action of the water—should be carefully wound on a line-drier, or failing that, round the back of a chair, or otherwise dried immediately after use, else disaster and disappointment must one day be incurred as the penalty for neglecting so self-evident a duty. An illustration in point. I was invited to fish on the section of the Tweed let along with Laidlawstiel mansion and shooting. The tenant was leaving for some days, and he instructed the keeper to write for me to come and have some fishing. This was on a Saturday, and as the river was falling after a flood, the keeper knew it would be in tip-top order on Monday. Knowing that a letter would not reach me till that day, he took train on Sunday morning to fetch me out in the afternoon, in order that I might have the benefit of an early start the following day. Being Sunday, I could not avail myself of some new gut casts which I usually purchase when starting on a fishing expedition likely to be productive. I had, however, a number in my book which had been used in previous years. Arriving at the river-side at nine o'clock, the fisherman was awaiting me, he having come by train to Thornielee Station. I never ascertained his real name, but he had earned the *sobriquet* of "Tappie," and as such was a well-known character in that district of Tweedside. He was elderly at this time, but in his younger days had taught the tenant as a boy to fish, hence his now being fisherman. He was very fond of whisky, and his language was by no means refined. Starting immediately below the station, we tested a cast—perhaps too gently—put on a "Wilkinson," and started. In a short time a fish took hold, and the gut gave way. As he had examined the cast, "Tappie" was very sore about it, but did not say much. Putting on another cast, exactly the same thing happened, but this time the old heathen indulged in language certainly more expressive than polite, about "your auld rotten gut." He had his fishing-rod with him, and on the line was a gut-cast with a fly named "Tappie," after himself. Examining the cast, it certainly was a strong one, and to use "Tappie's" words, "it would haud a bull." Taking his rod and wading in, I again commenced operations. Fishing for a time, I eventually hooked another salmon, when "Tappie" was in great glee, and shouted "Haud him tight, nae fear o' that gut breakin'." I kept a steady strain on him, but suddenly he made a resistless rush across the river, and when thirty yards of line were out, to my discomfiture and

disgust it gave way at the point of the rod and swept into the sullen waters, raising a spray as the broken line sped quick as lightning into the river. Looking round, "Tappie" seemed in that speechless stupor which none but the disappointed salmon-fisher can either imagine or describe, and seemed unable to indulge in any kind of language. His fine cast was gone, and his favourite fly along with it. Producing the flask, he quickly came round, and looking through my book we extemporised another cast, with which I secured a couple of fish. The episode is now ancient history, but it was a never-to-be-forgotten lesson. "Tappie," it is feared, had not always gone straight home, and in his cups had forgotten to dry his line, with the result described. The loss of a number of salmon is no small sacrifice for an angler to have to face; but if it should serve as a lesson to induce the reader to guard against the neglect to which I have called attention, it will not be without its compensation.

In parts of some rivers, such as the "rocky trows" of Makerston in the Tweed, there is much danger of the fish getting round a rock, which frequently results in its loss. On several occasions I have lost a fish and gut-cast as well from this. Once when fishing in the Spey I was successful in landing a salmon after it had baffled me for a considerable time. I succeeded in hooking him, strong, valiant, and fresh from the sea. The pool was dark and deep, and the current of water strong and rapid. Some distance down the river there were some rocks which, had they been placed for the express purpose of giving the fish an undue advantage over its captor, could not have been better planned. For some time he swam to and fro, but kept deep down in the sullen current until I thought there would be no difficulty in getting him to the gaff. After several attempts to get down amongst the rocks, from which he was skilfully coaxed and manœuvred, he gave unmistakable signs that he had made up his mind for what he evidently regarded in his trouble as the city refuge. To consent to this, I considered, was simply not only to lose the fish but the gut-cast as well. Just as I was realising that the testing moment was reached, the fish made a sudden and resistless rush for the rocks referred to. Immediately getting behind one, and feeling himself held, he jumped clean out of the water, but the gut did not give way. With rod bent almost double, I put on the entire strain, but found I could not move him. In such circumstances it is difficult to know what to do, but I always think it better to make



The Fish got round a rock.

up one's mind, even though it be wrong, than not making it up at all. I lowered the rod and slacked the line from the reel. This had the desired effect, as, no doubt thinking himself free, he slowly left the rock and crossed over a considerable distance. He seemed to be getting exhausted, and I managed to get him away from the rocks. He made a few more feeble rushes, but eventually had to come within reach of the gaff.

Another contingency attending the landing of salmon must not be overlooked. The angler—except when attended by a fishing gillie—must frequently be indebted to any passer-by or farm-servant in the fields for assistance in the operation of landing his fish, and it not infrequently happens that through sheer nervousness, by one unaccustomed to handle the gaff, the fish is scratched, which makes it desperate, and causes it to struggle violently, and very often at this juncture to make its escape. Another common though stupid error often committed by an inexperienced person, is to seize hold of the line with the one hand, as if to hold the fish steady till he gaffs it with the other. It is almost needless to say that in the unyielding grip of the hand, and consequent tightening of the line, a struggle on the part of the fish sets it free, very frequently carrying the hook along with it. In landing a salmon, when there is another person with a gaff or net, it is a mistake to bring it into too shallow water. The reason of this is obvious. So long as the entire body of the fish is under water, it is not so disposed to be restless as when brought into the shallow, where it becomes partially uncovered with its native element. Here great circumspection ought to be observed, and everything like excitement avoided. The person about to use the gaff should take care to come in stealthily behind the fish, as, the moment he is discovered, it, although apparently dead-beat, will frequently be found to summon its latent energies and again make for the depths. Too much care cannot be taken to avoid touching the line, while the gaff should be gently slipped into the water over the back of the fish and pulled immediately, taking care to hold the handle perpendicular.

When the angler is alone, he should not attempt to land the fish until it is utterly exhausted, and will allow itself to be floated quietly on its side to the water's edge. If at this juncture the angler can succeed in gently dragging or lifting the head of the fish on to the bank, and is able to keep the line tight so that the fish does not feel it to be

relaxed, he may go forward and take possession without any misgivings. When the rod is laid on the bank, care should be taken to see that it is in such a position that the handle of the reel is uppermost, as should the fish make a final effort to escape—by no means an unusual occurrence—the line will run out.

Owing to the construction of the eyes of a fish, I am persuaded that, as soon as its head is out of the water, its powers of vision are gone. This is a point I have heard disputed; but let those who call it in question test it for themselves, and the result will be such as to constrain them to accept this theory as correct.

I was once curious enough to test this theory in a somewhat practical way. One summer afternoon, after a heavy rainfall during the preceding night, I stood on a ledge of rock at a well-known salmon-leap on the river Aray. The number of fish that were forcing their way up was simply incredible. Ever and again they ran right up out of the roaring cataract, leaping out of the water within two or three feet of where I stood, but failing in the attempt, fell back into the foaming current, and were carried down into the pool. Again and again I recognised the same fish, from a white spot upon its shoulder, making repeated efforts before it succeeded, but in no case was there the slightest indication that my presence was discovered.

Before leaving this interesting subject, a few supplementary hints may prove of value to those who are not fully initiated. Try to discover from some local and intelligent angler the kind of fly which proves most successful as a lure; for, explain it as we may, fish will readily rise to one kind of fly in certain rivers, while they will not look at it in others. As the smaller fish generally ascend the rivers in the spring, one would naturally think that small flies would be best. Such, however, is not the case, and very large ones are generally used. Heavier and colder water in the spring months accounts for the large size of fly being used. As the river falls the size of the fly decreases in proportion. I have often wondered how small spring salmon in the Dee and elsewhere manage to get the large hooks into their mouths.

The reason why in some rivers salmon more readily rise to certain flies than they do in others, is largely dependent upon the colour of the water and volume of the river. At the same time, I am always more concerned as to the size of the fly than its colour or character. This, again, should be regulated by the colour of the water and the extent and

velocity of the current. With the "Jock Scott," blue and silver doctor, silver grey, Durham ranger, and one or two others, including, of course, different sizes, one would be able successfully to fish any river or salmon loch in Scotland. As to the mode of casting, anglers differ much in their opinion. Where there are high banks, trees, or bushes, the Spey cast is a decided advantage and easily learned. Instead of casting straight across stream, as many recommend, it is better to cast down and across, taking care to do so leisurely, holding the point of the rod well down, and letting the fly sink deep into the water. When the fish rises, and causes that disturbance which makes the angler's heart leap, guard against undue excitement. Once hooked, let the angler keep cool and be careful not to allow the line to slacken. Should he take a run, then leap into the air, it is necessary to lower the point of the rod. Attention to these very simple but important hints will result in landing many a salmon which would escape in the event of their being disregarded.

As a rule, the largest fish killed by the rod in Scotland is in the river Tay and the loch out of which it flows. It is no unusual thing to capture them 30 lb., 40 lb., and even well over 50 lb. weight. More large fish are caught in the Tay than any other river in Scotland. They are chiefly killed in February, March, and April by trolling and harling with artificial bait. The capture of such large fish here has, however, its disadvantages. There is the severity of the weather to be encountered, aggravated by the inactivity to which the angler is subjected sitting in an open boat, and where, even with every protection of rugs and overcoats, the discomfort is extreme.

Reverting to angling in rivers. As soon as the fly has alighted, the salmon-fisher, to the greatest extent possible, should work the fly with the point of the rod well down towards the surface of the water in regular and measured strokes: the length of the stroke and the speed at which the fly is worked must of course depend on the depth of the water, and more especially the action of the current. Unless when the water is dead calm and clear, it is a mistake to work the fly too rapidly.

The length of the cast is a matter which must be determined by the skill and experience of the person using the rod. In no case should an angler throw out more line than that which he has thoroughly under control. It naturally follows that beginners should rest satisfied with

casting a short line at first, and extending it as they acquire proficiency. This is too important to be disregarded if success in angling is to be attained. Those who persist in casting a longer line than they can control have two disadvantages to contend against. There is the disturbance of the water, amounting sometimes to a sort of splash, which is not conducive to sport. There is also the disadvantage that when the fish does seize the fly, the line is slack to the extent of being sometimes nearly doubled, and striking the fish is simply impossible. This latter disadvantage has frequently to be encountered by the most experienced angler when casting with a long line, in a baffling wind, in a large river. In such circumstances there is a remedy by which the disadvantage can be minimised—that is, by promptly pulling the line through the rings as soon as the fly has touched the surface of the water.

After fly-fishing, the next best sport is spinning for salmon. In point of fact many prefer spinning with bait to fly-fishing. For gentlemen advanced in life, and especially those who only get an occasional day, fishing with a heavy salmon-fly rod is exceedingly hard work. Spinning, however, is far less fatiguing. With a Hardy 11½ feet St Murdoch steel centre-rod, a No. 2 silex reel and a suitable fine line make a combination for salmon spinning difficult to beat, and can be used with little fatigue. It is most fascinating to watch a skilled spinner. He can throw the bait exactly where he pleases, and double the distance he can cast a fly. The result is that in a large river, especially at the commencement of the season when the water is cold, after throwing far across he can spin it carefully round to the side, thus searching every bit of the pool. The salmon angler has now a much better chance of success than if he was confined to fly alone. He will generally find that after fishing down a pool, say twice unsuccessfully with fly, by putting on natural bait the chances are he will soon have a “pull.” This is in fact the rule and not the exception, especially with a low thermometer. When the weather becomes milder as spring advances, the spinning-rod may be put aside as more success is likely to be secured with fly.

It is frequently remarked by anglers that, after a minnow or prawn has been fished through a pool, it is useless to try it with fly. This I have found to be a fallacy, as I have frequently secured a fish with fly after the pool had been carefully gone over with bait.

No bait-fishing is allowed on the Tweed before the net-fishing com-

mences, or after it is closed. This I regard as a mistake. When it is taken into consideration that many thousands of fish are slaughtered on the upper reaches of the river by sniggling and other kindred devices, not to speak of those which succumb to disease, a few hundreds caught in a sportsmanlike manner could do no serious injury to the stocking of the river. Bait-fishing is not prohibited in other rivers, and why this anomaly should continue on the Tweed is difficult of explanation.

CHAPTER XIII.

DOGS—THEIR MANAGEMENT AND TRAINING.

It was not my intention in this work to introduce the subject of dogs. On a visit, however, to one of the finest kennels of pointers I have ever seen, and on inquiring if they were good ones, the keeper replied in the affirmative. Not knowing whom he was addressing, he remarked, "They are all broken on Tom Speedy's principles." In consequence of dogs being given up on many moors and driving substituted, fewer young keepers have the opportunity of acquiring knowledge of this important branch of a keeper's duties other than with retrievers. Keeping this in view, and as my previous writings on the subject were so much appreciated, as in the case referred to, I have been advised by friends to reproduce the subject of the management and training of dogs. I therefore willingly comply, and if the following pages should conduce to healthier and better dogs, the writing of them will not be without its compensation. As a boy, I studied 'Colonel Hutchison on Dog Breaking,' but soon discovered that very much of it was written to pad the pages of his book, which rendered it confusing to the uninitiated. This I frankly confess, however, that his principles are in the right direction. It is therefore not the intention here to dilate on the subject, but to put it in as brief and popular a form as possible without recourse to voluminous instructions which only tend to confuse a beginner.

There are few things which more specially demand the attention of the sportsman than the kennel. Without the aid of some well-trained dogs the realisation of sport upon a grouse-moor is simply impossible. In the absence of this acquisition, a moor abundantly stocked with grouse may be obtained, but the sport will necessarily prove most indifferent, more especially at the commencement of the season. An occasional double shot may be got when the covey is first flushed, but

after the birds have got scattered and settled down, without the aid of dogs all attempts to start the single birds will generally prove fruitless. Hence the time of the sportsman is being frittered away amid disappointment and irritation, with a light bag as the invariable result. In addition to the advantages of finding game rapidly, and of picking up the scattered brood with despatch, there is the pleasure to be derived from the skill and sagacity exhibited by dogs thoroughly trained for their work. I have indeed known some of the most experienced sportsmen who were so interested in studying the movements of dogs, and watching the skill with which they accomplished their deadly purpose, that the use of the gun was regarded by them as of secondary importance. To the naturalist and lover of the canine race, there are few sights more interesting than to see a brace of high-bred well-trained pointers or setters at work, skilfully quartering their ground. On catching the wind, and suddenly discovering that they are close upon their game, they present a view well worthy the attention of the artist. The one that is fortunate enough first to detect the birds, may be seen standing with glistening eyes directed toward the game, and quivering with nervous excitement; while the other, at a considerable distance, stands motionless as a statue, all alive to the danger of the birds being prematurely set on wing. The gentleman who would enjoy grouse-shooting in such enviable circumstances must look well to the purchasing of his dogs. If he would be saved an endless amount of worry and unrequited trouble, let him endeavour to ascertain, on trustworthy authority, before purchasing dogs, that their parentage has been well known and approved in sporting circles. This may necessitate the expenditure of a few additional pounds at the outset, but rest assured it will not only be found the most satisfactory, but the most economical in the long-run. It is surprising how slow many sportsmen are in recognising this palpable fact. Sometimes gentlemen attend auction sales, where they buy dogs cheap; and although they are generally warranted steady, the sportsman often finds, when it is too late, that he has been thoroughly deceived.

As already indicated, many gentlemen have discarded pointers and setters and have their moors driven. Retrievers are the only dogs required for this class of sport. There are, however, some grouse-shootings where hunting with dogs is still practised. Few gentlemen nowadays keep up a kennel, and dogs are pretty much in the hands of dealers. Many of them are honourable men, but when it is kept in

view that the food of a dog alone, up to the time it is trained and ready to shoot over on the moor, costs between five and six pounds, to which must be added the time of the breaker, every dog so reared and trained has necessarily to go into the market either for sale or hire. In pre-war days eight pounds was the customary hire of a dog, and with the above explanation it is easy to see there was not much in it for the hirer. Not only so, but dogs hired out for a few weeks very often do not get the same care and attention they would get had they been one's own. I have frequently been sorry for the hirer to see dogs returned suffering from skin disease, or utterly spoiled, the most prominent fault being running into shot through carelessness or want of proper discipline. I was once asked to report on a pair of dogs for a gentleman to whom they had been recommended as really first-class. They were highly bred, very superior-looking animals, but being in an agricultural district and in the month of July, the trial was somewhat perfunctory. I recommended them, as far as I could see, as being well trained, but advised the gentleman that before paying for them his keeper should try them more effectively on his moor in Aberdeenshire. This was done, and they gave every satisfaction. Unfortunately, the keeper did not kill a bird over them, which should in all cases be done when a dog is on trial. The result was, on the "12th," directly a bird fell they rushed in and seized it, and they had to be hunted all the season with trash cords, which is so distasteful to gentlemen. It was subsequently ascertained that they had been hired out the previous season, which at once explained how they had been spoiled.

It is a simple thing to train a dog to point, back, and refrain from chase, but it is another and a very different thing to make it a good one. In my younger days I had charge of a very fine kennel of pointers, and usually reared half a dozen puppies every year. I gave them elementary lessons in early grass fields in spring, but took them in July to a large moor in the north of Perthshire to complete their education. Though they were all broken, it was frequently found that one and sometimes two outshone the others, and if I got a couple of real good ones out of the six, I was quite pleased.

Reverting to auction sales, after many years' experience and out of numbers purchased under such circumstances, few of them would contribute to a gentleman's real sport and enjoyment. Many of them were beautiful, well-made dogs; but this, it is scarcely necessary to say, is no

guarantee of their being either manageable or up to their work. I am not overlooking the fact that there are occasions when the kennels of noblemen and gentlemen are thrown into the market; but it is no less true that such dogs frequently find purchasers before reaching the sale-yard. Sometimes when it is known to be a *bona-fide* sale of a sportsman's kennel, good prices are obtained. My own dogs, after advancing years compelled my late employer to give up shooting, found their way into a sale-yard. The nobleman who took the shooting after us bought the entire kennel, and I was asked to put a price on them. As some of them were old, and some young ones unbroken, I valued them at £10 overhead, and they went back to their old quarters with the new tenant. It unfortunately was his last season, as he contracted a serious malady, which, alas! had a fatal termination. The dogs were subsequently sent to Aldridge's in London, where they fetched from twenty to fifty guineas each. They were known, however, to belong to sportsmen who would not keep a bad one.

It will thus be seen that unless something is known about dogs beforehand, beware of auction sales. It is safer to ascertain who has dogs to sell and arrange to have a trial before purchase. If possible, get a dog known to be good, and hunt it along with those for sale, as they may be steady on their game—in fact, do nothing which could be called a fault—and yet be very indifferent. When tried beside a good dog, it is easily seen whether they are inferior or otherwise.

Assuming that a brace or more of good dogs has been got, the next consideration is to secure a good kennel to put them in. Many people think any place is good enough for dogs, and are content to let them be put away in any shed or outhouse, thinking that if they are in a house at all, they are all right. This is a great mistake: and nature might teach people that fine-coated dogs, pointers especially, should have a dry and warm place to sleep in. Inconsiderate keepers, entrusted with the charge of dogs during the shooting season, seem to forget that after a hard day's work—running perhaps sixty or eighty miles at full speed—the pores of the skin are open and the vital powers enfeebled, when they return in the evening to their kennel. Numbers of kennels at shooting-boxes are made of wooden slabs with no want of ventilation, and quite unfit for any dog. Should, however, they be built with stone and lime, they are very often constructed more for external show than for the warmth and comfort of the dogs. In the erection of a kennel, particular

attention should be paid to its not being built in a hollow, but rather on an elevated position, and that the drainage be perfect, as smells emitted from drains have very much to do with the diseases of man and beast. The ground should always slope outwards, and the water be allowed to run several yards out of the kennel enclosure before there is a sink to admit it into the drain; as, should the sink be in the kennel, and rats be in the drain—by no means an unusual circumstance—a pointer or setter will stand for hours with its nose over it, and thus inhale a poisonous effluvia, by which his scenting power is diminished and disease may be engendered and death ensue. The best means of keeping rats from finding their way up the drains, and of preventing sewage gas getting into the kennel, is the introduction of a Buchan trap.

If built of stone, a kennel should be strapped and lathed the same as a dwelling-house, and plastered with cement instead of lime, as it stands better should dogs scratch it. If built of brick, a boss in the centre of the wall will obviate the necessity of strapping and lathing.

In all circumstances, kennels should be made as dry and warm as possible—the bed made the proper size for the number of dogs, and deep enough that when lying in it any draught will blow right over them.

In order that dogs may be kept healthy and comfortable, it is desirable that they should be taught to be cleanly in their habits. This is easily accomplished if attention be given to it when dogs are young. In consequence of this important particular in the training of dogs being neglected, it is no unusual thing for a dog, every way fit for his work, to become an intolerable nuisance in a kennel. Many keepers regard it as hopeless to cure an old dog of the habit of soaking the straw with which he has been accommodated for his bed. This is a mistake; and however confirmed the habit in question, it may and ought to be corrected if due attention be given to the following rule. Take a block of wood, say two feet high, so broad at the bottom as not to be easily upset. Put said block in the centre of the yard or enclosed space in front of the kennel, and place beside it a quantity of the wet straw from the bench in which the delinquent dog has slept. The effect of this will be to attract the delinquent by the smell, who will return to it at proper intervals, and thus ultimately ensure the bed being kept clean and dry—a change which the dog will soon learn to appreciate. In order to make this cure of a bad habit effectual, it is not enough that the smell be

transferred with the wet straw into the yard, but steps must at the same time be taken to have the bed thoroughly disinfected, so that all smell will be eradicated in the bed and inside of the kennel. To accomplish this, get some strong disinfectant, pour a little of it into a vessel, and with a brush scrub well the wet parts, so that all smell will be taken away. Watch carefully every day, and if the straw should be wet remove it at once, and apply the brush with the disinfectant. If this is attended to, it will be found unnecessary to let the dirty straw remain in the yard more than a few days; but the block of wood should stand permanently. It may take a little time, but by attention to these rules it will be found that a cure of the bad habit has been effected.

Before introducing dogs for the first time into a kennel, I would recommend that it be disinfected. Perhaps a lime-shell put into a pail of water, and when it boils, to brush every part, wood, plaster, and floor, with the boiling liquid, is as good as anything. There is always the risk of its having been tenanted by animals suffering from a contagious disease. "Prevention is better than cure," and a little judicious and considerate care may save a deal of trouble afterwards. By careful attention to cleanliness, and regularity in feeding with good wholesome diet, it is surprising what healthy animals dogs are. Their bed, which should consist of good clean oat-straw, ought to be lifted and the dust shaken out of it every day.

Biscuits made with strong soup and minced meat in them are nowadays purveyed by a number of makers. A change occasionally, however, is to be recommended. Of course they should have a liberal supply of fresh water every day.

Some dogs are shy feeders, and are generally cried out by their name to feed before the others are allowed; and it is certainly very pretty to see a number of dogs standing patiently waiting their name to be called before they dare commence. I think, however, it is much better to let them all begin to feed at the same time, as dogs have an amount of greed and jealousy, and eat faster beside others than when alone. Order the fat ones and fast eaters away as soon as they have had sufficient. Should any one be a favourite, and by extra work be reduced in condition, do not by any means feed it with bits at lunch, or scraps from the kitchen, as this is apt to cause it to reject its usual food, and if that is not sufficient to maintain it, the dog will

naturally become thinner. It is much better that the scraps should be mixed with its ordinary meal, and thus the evil pointed out will be avoided.

The treatment of dogs in disease is too important a subject to be altogether overlooked. Numerous books have already been written upon this subject, many of them being of a very conflicting character; while to the student of veterinary science, capable of discrimination, there is doubtless much in many of these works that is useful and important. At the same time, it must be admitted that, among the uninitiated, their tendency is more to confuse and lead astray than otherwise. The treatment of disease and accidents among dogs has been very much improved of late years, which may be largely attributed to the advancement of medical science. Until recently, horses and dogs were tortured with all sorts of coarse treatment applied as remedial measures. Compounds of acids, mercurials, caustics, and corrosives were largely used, inflicting excruciating suffering on the unhappy animals sought to be cured, but frequently subjected to a lingering death. Medicine is now sparingly given, veterinary surgeons and sportsmen having learned that when the animal economy is deranged, nature will ever feel grateful in being assisted, but will rarely submit to be subjected to the law of force. While there are circumstances when internal medicines may prove advantageous, experience and observation have satisfied me that nature, if left to herself, with rest, warmth, and comfort, will generally throw off disease, when medicine injudiciously administered would increase the suffering of the animal, and ultimately prove fatal. I may here mention some of the diseases to which dogs are liable during the shooting season, and endeavour to point out how the causes of said diseases may be removed. Kennel lameness, founder, and rheumatism are often caused by one dog of a quarrelsome disposition being master in the kennel, and constantly growling. Some of the more timid, being afraid, prefer lying on the floor. When one dog is so afraid of another as to lie on the floor, no application of the whip will make it remain on the bed. No sooner has the keeper retired and quiet been restored, than a growl from the "bully" will cause it again to sneak out and resume its quarters on the floor. So soon as a dog is suspected of doing this, those in charge should occasionally at night quietly visit the kennel with a flash-lamp, and, turning the light into the interior of the kennel, it would then be seen if any of them were lying out, and if so, have them shifted at once. It

is desirable to have a separate bed for each dog, with a partition between them where dogs are quarrelsome.

Some kennels, being paved with brick, cement, or flagstones, necessarily require to be washed every day; and as dogs frequently stretch themselves in the sun, their warm bodies thus attract the damp out of the stones—hence rheumatism, stiffness in the joints, and not unfrequently lameness. As a protection from such complaints, we would advise a wooden bench in the kennel enclosure, as the dogs will be sure to spring up and take advantage of it. It should be so constructed as to admit of its being removed at night and on wet days. These attentions may involve a little trouble, but the pleasure to be derived from hunting with a swift lively dog, instead of one willing but utterly unfit for its work, will more than compensate for any little inconvenience that may have been incurred. Cod-liver oil assists nature in getting rid of kennel lameness.

When dogs are observed not to be in a thriving condition they should be closely watched, in order to ascertain whether or not they are suffering from worms; and if such is found to be the case, give an adult pointer or setter a dessert-spoonful of newly ground areca-nut powder, made up with a little melted grease into a bolus. When this is administered, after a long fast, it is usually very effective for tape-worm. If, however, the worms are of the smaller species, five grains of santonine every alternate day for a week will generally effect a cure.

Distemper is one of those malignant diseases with which the canine race is afflicted. This malady appears to attack all classes of dogs, and, as a rule, when they are young. There is no disease which I regard with more anxiety, as there are few for which less can be done in the way of medical treatment. All kind of cures have been prescribed for this dangerous malady; but after much experience, I am satisfied that the best cure is to nurse them well, keep them warm, and let everything like cold or draughts be studiously guarded against. It would be well if those who talk of distemper being cured by any uniform specific would keep in view that there is such a thing as nature proving a safe and successful physician. I make this remark because I believe more dogs recover from distemper without medicine than by the administering of it. It may be accepted as a general rule, that where medicine does no good, the probability is that it will do harm. If in all cases of virulent distemper the dog were put into a comfortable berth—a stable where

it could bury itself among clean straw is perhaps the best place—if, at the same time, care were taken to supply it with beef-tea, or occasionally warm milk, to keep up its strength until the disease had run its course,—it would be found that many dogs would recover that would otherwise die under the administration of medicine.

Another most distressing and infectious disease is that of mange, which, when once it has got into a kennel, is difficult to get rid of. When virulent mange has been allowed to go on unchecked, the dog loses all courage and vitality, and lies on his infected bed a poor and powerless object, and a nucleus of infection. What tends greatly to the aggravation of this malady is, that it is notoriously contagious. As it is a peculiarity in this disease to increase in virulence from day to day until the constitution of the afflicted animal has been thoroughly undermined, it is of the utmost importance that it be speedily and effectively dealt with. Some people continue to hunt their dogs while infected with mange; but it is a short-sighted policy for themselves, and most inconsiderate for their dogs. It is dreadfully annoying to the poor animal, after hunting all day, to get no rest at night because of this horrible disease. Many think it incurable: and it is surprising how many dogs are ordered to be destroyed on being pronounced incurable. It does seem strange that this should be so, as neither the nature of the disease nor the inadequacy of sound resolute treatment warrants the destruction of so many dogs afflicted with mange. I have rarely seen the dog that could not be cured of mange by carefully rubbing it with train-oil, black sulphur, and spirits of tar of about equal parts. In the application of this mixture, the size of the dog and the roughness of its coat must of course be considered; but while care must be taken that it is well rubbed in with the hands, particularly on those affected parts of the animal protected with hair, the naked parts should be tenderly dealt with, not merely to avoid unnecessary pain, but to prevent the skin being blistered. Care should be taken that the dog has plenty of dry straw for a bed, as he will be very cold after the mixture has been applied. As mange is parasitic, eggs may be unhatched in the skin, and it is safer to give a second rubbing, say a fortnight after. In a few days the dog should be subjected to a thorough washing, and before returning him to his kennel, it ought to be properly cleaned and disinfected. In ordinary cases this treatment will effect a cure; but should the disease break out in spots here and

there, it should be carefully watched, and the affected parts rubbed whenever they are seen. During this course of treatment, three drops of "Fowler's solution of arsenic," given internally twice each day for a week, will have a salutary effect. This treatment for mange has been condemned by some writers in journals as "stale and old-fashioned"; but after many years of large experience, I feel convinced that there is no cure more simple, safe, and effectual.

Canker in the ear is another disease a great many dogs suffer from, but is more troublesome than dangerous. The seat of the disease is within the ear, and it is simply cured by lead lotion, "liquor plumbi" and "aqua distil" of equal parts, half a teaspoonful being twice or thrice a day dropped and well worked into the passages of the ear. The treatment here proposed is no experiment, having been approved of by competent authorities and used with much success. Indeed I am not aware of this remedy having failed to effect a cure when honestly applied and persisted in; besides, it has the advantage of being such a cheap commodity that nobody need let their dog suffer. Canker in the ear is easily known by the dog constantly shaking his ears, or scratching them with his hind foot, and in a bad case, moaning the while. Perhaps a more simple cure is boracic powder blown as far into the ear as possible.

When we consider the sagacity and kindly social habits of the canine race, the hearty and willing service which they render to man in all his varied relations, it is only an act of justice to contribute to their comfort, more especially when overtaken by sickness and disease.

The subject of dog-breaking is one upon which a few practical hints are most necessary. There are many dogs which have all the constitutional elements in their nature for being first-rate hunters, but which are rendered literally useless from the want of attention to a few important principles in their training. It is not enough that the dog has a first-rate pedigree—respect must also be had to its disposition and temper in training. There are some dogs so timid that everything must be done to coax and encourage them to take an interest in their work, while others are so bold and reckless as to threaten to be utterly unmanageable. These, again, must be treated with firmness, and every disposition to be self-willed must be checked, although everything like harshness and cruelty must be studiously guarded against.

There are few sportsmen who can command the leisure necessary to train their dogs, even if they should have the inclination. This is to be regretted, because of the pleasure to be derived while watching the development of the instincts of those sagacious and interesting animals. If, however, sport is to be enjoyed, dogs must be trained, no matter by whom; hence the following pages, which are designed to render dog-breaking a comparatively easy task.

In the first place, care must be taken, as I have indicated, to have a good breed, and, if possible, to get the pups as soon as they leave the mother, as it is much easier to teach young dogs obedience before any bad habit has been acquired. The habit of young dogs hunting by themselves is a very common and natural one, but ought to be instantly checked. The habit of going away with other inveterate hunters on their own account demands still more sharp and effective discipline. The object of these remarks is to show how important it is that, before purchasing young unbroken dogs, care should be taken to see that they have been in proper keeping. Young dogs that have been reared in a large yard are a safer investment than those which have been reared and allowed to roam about in the country, more particularly where game abounds. I do not mean to suggest that puppies should be reared in confinement. There is nothing more mischievous than this, as is proved by the tendency to their becoming bent in the legs and to an enlargement of their joints. It is of the utmost advantage that young dogs should be allowed to romp about, only let care be taken that they acquire no habit adverse to their efficient training.

It is a mistake to effect the entire breaking of dogs when too young. They should, at least, be ten or twelve months old, when they have become somewhat well formed and are full of life and energy, before they are run for any length of time. I once had a beautiful black-and-white pointer puppy which was only six months old at the beginning of August. She was too young to break, but as she howled all day in the kennel when left by herself, I frequently took her out with me, though she remained in the couples with the gillie when training others. She had been taught to go in couples, to drop, and was well under command, so more for curiosity than aught else I ran her for a few minutes daily. Birds were plentiful, and as she was well bred, soon found coveys and pointed. After lunch on the "12th," I asked

permission to run her for a few minutes, and she surprised everybody. Birds, as already said, were plentiful, and she soon found several broods. With two good guns ten brace were bagged in half an hour, when I coupled her up. The following year she was one of the prettiest and best bitches I ever saw. "Nell," as she was named, had one peculiarity. If a bird fell in water, so soon as she was told to "hold up" she dashed in and brought it ashore. She would not, however, carry it on land, and always laid it down at the edge of the bank. When shooting along the side of Loch Garry, when a covey of grouse was flushed, they frequently crossed small bays at the side of the loch, and when shot fell in the water. Nell's peculiarity was therefore invaluable.

Care must, however, be taken never to tire a very young dog, there being a danger of overbreaking. A spiritless dog which has no heart or pleasure in its work—it matters not how well bred—is to the sportsman a positive nuisance. The first lesson in training is to teach the dog to walk to heel. This must be done with as little speaking as possible. When the dog shows an inclination to run out and keep before you, as is the habit of shepherds' collies, call him sharply back "to heel"; at the same time, by a sweep of your hand downwards and backwards, beckon him to come in behind. This being done, watch carefully, without appearing to take much notice of him, that he remains in the position indicated. It is important that the same words conveying a distinct meaning be adhered to. Dogs are intelligent animals, and come very soon to understand any form of expression; but when that is changed, and the tone and temper altered, they become confused and bewildered. After a few days' careful attention to this practice, it will be found that a simple wave of the hand will prove sufficient of itself to bring the dog to heel.

When two or more young dogs are under training, they must, as a matter of course, be taught to go in couples. At first they will, in their own way, protest against this infraction of their liberty. They will jump, pull, and tug at cross purposes. It is not unusual that one will resolutely refuse to move; and in such circumstances they will occasionally worry and fight with one another, each in its turn thinking that its fellow is to blame.

After coupling young dogs for a few days, they get accustomed and reconciled to their position. Some of them rather seem to enjoy it, and should frequently be taken out for exercise in couples. On no account

should dogs ever be subjected to training, even to the extent of calling them "to heel," when coupled together. One of them may be disposed to be obedient, while the other may be self-willed; and by seeking to train dogs in such circumstances, an injury is inflicted upon both.

After having got dogs trained to walk to heel, the next step is to teach them to drop to hand. At first a little difficulty may be experienced, but it is surprising how soon well-bred dogs come to understand this. As soon as the dog learns what is wanted, instant obedience must be insisted on, no matter how distant or how fast the dog may be going; the moment your hand is up, down he should go. Difficult as this may seem, it only requires a little patience to accomplish it. It will be found in many cases necessary to use a trash-cord in breaking dogs, more especially when they are high-tempered and show a disposition to be reckless and self-willed. The length and thickness of the cord depend on the boldness or shyness of the dog. Most dogs under training, when taken out of the kennel, will be keen to follow to the young grass-field or to the moor. If the dog is bold in his disposition, put on the cord when you leave home and let him drag it along. Walk a good distance from the kennel before you begin to work, as, should you begin in a field close by, he may be inclined to run home. To break dogs effectively, only one should be taken out at a time at the outset, and no person should accompany the breaker, as that will have the effect of taking up the dog's attention. At first you may experience difficulty in inducing the dog to leave your heel on entering the field; but as the object is to teach it to drop to hand, this must secure your whole attention. At first, when called upon to drop, the dog will naturally fail to understand the object you have in view. In this event, put your hand gently on the animal and press him to the ground; then, holding up your hand quietly but deliberately, look him in the face and say "Down." While he remains in this attitude, walk a pace or two backwards, still looking him in the face, and holding up your right hand with the whip in it. The dog will still fail to apprehend your meaning, and in all probability will timidly proceed to creep towards you. Here the dog must be brought back to the original spot. It must then be put in its former attitude, and once more told to "down." As formerly, go slowly backwards for a few yards, still keeping your eye on the dog; and if it show the least inclination to rise, once more say "Down," and crack your whip. If it still persist in coming towards you, carry it once more to its original posi-

tion. Be careful to keep your temper, and repeat in a slightly sterner tone the word "down." The animal, while frightened at all this manœuvring, will now begin to apprehend in some degree the lesson which you are endeavouring to inculcate. Should it belong to the extremely nervous or somewhat stupid class, and still fail to understand the object you have in view, there is but one course to pursue. Carry it back, if need be, a dozen times before you attempt to use the whip; and if it still persist, it is evidently a high-tempered one. A gentle cut with the whip, saying in a stern voice "Down," will probably have the desired effect; but this is generally unnecessary, as when once or twice carried back, dogs begin to understand what is wanted and will lie till you go back a few paces. As indicated, you should not go back more than three or four yards at first, and after keeping them down for some time, you may then encourage them to come to you with a wave of the hand, which they are very glad to do; then pat them gently, and get them to understand that you are pleased with what they have done. This is sufficient for one day. Don't try to teach them too much at once or you will confuse them. This is most important; and half an hour a day for a week will make them perfect in dropping to hand at any distance, beginning as already described, and gradually going back little by little. After having got them to drop by simply holding up the hand, and to come by waving on them, try to bring them to you by whistling in a low tone that they can hear and no more. They will probably not come at first, but by a simultaneous wave of the hand will soon learn to answer the "call," and understand that by whistling you wish them to come to you. Never whistle loud when dogs are near you, as when far away the sound will be so faint they will pay no attention to it. Modulate the sound according to the distance. I have seen it recommended to hold up one hand to teach them one thing, and the other hand another thing. I do not approve of this, as the less complicated the instructions the better.

After a dog in course of training has been got to drop at any distance and to answer the "call," it should then be made to understand that it is not to move till whistled to or beckoned on, even though the "breaker" should be moving about. This he should study to do, and even to walk right round the dog, always keeping his eye on it. If the dog should offer to move, he must hold up his hand and make it again sit down. By attention to this, little difficulty will be felt in getting dogs to back.

Care must be taken that this lesson is taught them in a bare field where there is no chance of game being found. Up to this time they should neither have seen nor sniffed game. On introducing dogs to game, try if possible to have them on the moors, as grouse do not run so much as partridges, and if prior to the beginning of August the young broods will sit close. Take only one young dog at a time. Some keepers break two at once; but as they are almost certain to get jealous of each other, I would recommend that they should have some experience in pointing before being hunted double. It is not improbable that the dog may range a little and point the first time he is among game, but more likely he will not leave the heel, notwithstanding every effort being made to get him to "hold up" (the words generally used to induce him to range). Walk slowly on till you put up birds. When they rise, put the dog down for a short time. Then walk up to the place where they rose, and let him sniff the ground, which, upon doing, he will become quite animated. It is interesting to watch the excitement of a young high-bred dog when for the first time he inhales the scent of game. The whole body trembles and becomes rigid. The ears hang rather backwards, which gives a sort of half-pleased, half-frightened appearance to the animal. Don't let him remain too long sniffing the place, as it is annoying to see dogs wasting time when the birds are gone. Walk on as before, always enticing him to range. By the time the dog has seen a few coveys of birds rise, and gets leave to sniff the place they have left, he will soon begin to look for them of his own accord. Most likely he will put up birds when he comes on them at first. With a little practice, however, he will soon begin to wind birds before putting them up, and will naturally point at them. Whenever the least indication of his winding birds is seen, get hold of the cord without letting him know; and if he does not come to a standstill, but keeps on drawing until you are afraid he is going to put them up, stop him with the cord, saying "Toho" in a very sharp tone. Let your manner show great earnestness, which he will not be slow to observe. Keep him still for a few minutes. Some recommend a quarter of an hour; but as I have experienced far more difficulty in keeping dogs free from false points and over-caution in going up to their game than I ever had with them running in, I think fifteen minutes altogether too long for any practical purpose. If a dog rushes in and puts up the birds, by getting hold of the trash-cord that can be prevented. But should he, on the contrary, have acquired the

habit of being over-steady, it will be found no easy matter afterwards to get him to move up to the game with sufficient celerity.

Of all faults in dogs, I think that of persistently refusing to advance upon the game among the worst, and one of the most difficult to cure. Some keepers, when they find their dog so staunch that he will not move, go in before him, and kick the heather to put up birds. This is a mistaken idea, as the dog is thereby led to understand that he has only to find the birds and point, and that it is the keeper's duty to kick the heather and flush them. After keeping the dog on the point for a few minutes, as before observed, walk alongside of him, and always let him lead you steadily up to the game. No matter what pace you walk at, the dog should go equally fast or slow. The moment the birds rise, say "Down charge," and make him "down" as before explained, and on no account let him get up without your authority. After beckoning him on with a wave of the hand, let him sniff the place, and hunt all round in case a bird may be left, which not unfrequently occurs. Go on again; it is surprising how soon dogs gradually learn to run from side to side, occasionally looking to the keeper for instructions. Some approve of teaching them to range prior to their seeing game, and instructing them where to go by waving their hands, and whistling when they are at the extreme distance desired. I, however, think it time enough to teach them to range when they know what they are ranging for. Besides, they will be much easier managed when they make their first points near you, than if taught first to range and probably point a hundred yards away. They will commit all sorts of faults when far out, while they would behave quite well if near you. With a little experience a dog will come to range from side to side, with his nose always to the wind, and point steadily when he is certain the birds are before him. When he looks for instructions, the breaker should, by the movement of his body and by facing the way he wants the dog to hunt, teach him to go as he wishes with as little waving of the arms as possible. On no account interfere so long as the dog is doing right. Some persons are always whistling and waving unnecessarily, consequently the dog gets so accustomed to these movements that he pays no attention to them.

Up to this time I hope the young dog has not seen a hare; but

when first he sees one, not knowing what it is, he will stand and look at it in wonder. While he is standing, whistle or call to the dog by name, and hold up your hand, thus putting him down. Go up to him, and keep him down for some time. When he is again signalled to hunt, care must be taken that he does not get away on the scent of the hare; if he should, whistle or call him off, as it is much more difficult to prevent dogs footing out the scent than chasing by sight. This is a point that cannot be too imperatively insisted upon, as by its neglect many otherwise good dogs have been irretrievably ruined. I have never had any difficulty in stopping dogs from chasing hares, provided they had not seen them or rabbits prior to the time their tuition began. If they should have acquired the habit of chasing, the best plan to adopt is to go to a place where hares are plentiful. Put on a trash-cord—say thirty yards of cord—three or four times the thickness of sheep-net twine. Should a hare rise, put the dog down of course, but try to find one in its seat. Go round about the hare as if going to pass it, and it will squat closer. Have the end of the cord rolled round the handle of the whip, so as not to hurt the hand. Get as close to the hare as possible, and when it rises and the dog gives chase, call him sternly by name, followed by "War' hare." At first the dog may pay no attention; so when the cord is getting tight, pull in the opposite direction, and the dog will be landed on his back. Pull him towards you, and give him a few sharp cuts with the whip, saying, "War' hare." A few similar lessons may stop the dog from chasing by sight; but it is more difficult to get him to stop putting his nose to the ground and running the scent like a beagle or fox-terrier. Should he be very obstinate and pay no attention to the whistle, I would recommend the use of a puzzle-peg. This is made of wood, and strapped round the dog's neck; it is also fastened round his under-jaw, and protrudes about a foot beyond his nose, so that when he attempts to put his nose down it sticks in the ground and throws him head over heels. Hares should certainly not be shot over young dogs during their first season.

On no account should a person hunting dogs cry "War' hare" unless he is certain the dog really sees one. A keeper of my acquaintance who had a pointer, an inveterate hare-chaser, habitually called out "War' hare" whenever one started, whether the dog got his eyes on it or not. When shooting with him one day, I observed



Study.

that "Chaff"—which was the dog's name—behaved splendidly among birds; but directly a hare started, he was off like a greyhound. Mountain hares were in abundance, and were ever and again getting up in front of us, when "War' hare, Chaff!" was sure to be bawled out by the keeper. I very soon discovered that though "Chaff" did not see the hare, directly he heard the well-known shout he looked round till he got his eyes on it, when he immediately started in pursuit. The folly of crying out will thus be seen, as, had the keeper kept quiet, the dog would have been less frequently at fault. Keepers would do well to turn this incident to account.

Having accomplished his training thus far, it is now time to kill some birds over the dog, and to teach him to "seek dead." A great many young dogs are afraid of the report of the gun; but it is not difficult to get them reconciled to it, provided they are keen to hunt without it. Should the dog be shy, take some one who is known to be a good shot, as the first birds shot at over a gun-shy dog should certainly be killed. When the dog is quite steady on his point, his manner will tell by this time if he is certain that game is before him; and if the scent is good, you can judge what distance they are off. Assuming they are about twenty yards, let the assistant go round in a circle, and come towards the dog till he is about forty yards off. Let him stand still till the dog goes up to the birds. Whenever they rise, of course the dog will go down. The assistant must fire one shot only. If the dog is inclined to run back, keep hold of the rope; put him down for a short time, and stroke and encourage him to go up to the dead bird, saying, "Seek dead," "Dead, dead." Have the assistant instructed to move out of the way whenever he kills the bird, as it is the gun the dog will be afraid of. When he gets near the bird he will point at it: pick it up, show it to the dog, and let him smell it; but take care that he does not bite it. It is very rare that a day's shooting as described does not reconcile shy dogs to the use of the gun. Still, there are those which may continue to be frightened and gun-shy, and may probably run back whenever they get the point, knowing that the gun is coming, or when they see the sportsman approaching. In such cases it is a good plan to have timid dogs previously taught to back, and to hunt them with another dog that is not afraid, when they will gather courage. The timid dog may be for a time hunted

in couples with an old experienced one; but here no fixed rule is applicable, and very much must be left to the good sense of the keeper. Patience and perseverance, and a study of the dog's temper, are necessary in such circumstances. When puppies were very small, and when sucking their mother in the yard, I frequently fired shots, and never had trouble with any of them being gun-shy.

In training dogs to back, it is advisable to take a young dog out with an old one that is not likely to commit any faults. Put them down before they are allowed to begin to hunt, as it is most annoying to see dogs go the moment they are uncoupled. Let them lie a minute or so, then show one with a wave of your hand which way he is wanted to go, keeping the other one still down. Then wave him to go the other way, and always walk straight up wind while giving dogs their first lessons with the game. If possible, get them to gallop on each side of you, crossing in front. Above everything, walk slowly and stand still occasionally till they have quartered the ground properly, then continue slowly to advance. Some persons walk straight ahead, never considering that if the dog take a long turn to the one side, by walking on they miss all the ground on the side opposite. The old experienced dog will most likely secure the first point. The moment you see this, get your eye on the young one. If he is a well-bred dog, he will very likely back whenever he sees the other one pointing; but, on the other hand, he is as likely to run up to him, and may probably go past him till he gets the wind of the game. Should this be the case, the moment you are aware he sees the one pointing, hold up your hand, and cry "Toho." If you get the young dog to stop, go up to the one pointing, always keeping your eye on the former, and seeing that he does not move forward. Then put up the birds, and take care that the dog hunts round about, in case any may be left, which, as we have already remarked, often happens in the early part of the season. Call upon the young one, and let them both "hold up" as before. In spite of your "toho," and holding up your hand, should the young dog run up to the other one, carry him back to the spot where he should have backed. By a little perseverance and attention to these hints, you will accomplish much towards training your dog to perfection.

In regard to retrievers, it would be superfluous to go into detail in regard to their training, as now with so much grouse and partridge driving, every keeper is almost certain to be followed by one. I



One of the right sort.

venture to suggest, however, that beginners should be careful to secure a puppy of approved parentage, keep it as much beside him as possible, and teach it to down to hand like a pointer. At the same time, a perusal of Colonel Henry Smith's book on 'The Training of Retrievers,' along with the common-sense of the breaker, will be a decided advantage.

To use the words of Mr P. J. Mackie, "Keep the important direction in view, *never lend your dog.*" With this I concur, as I have on several occasions seen dogs that I knew to be good and perfectly steady, on changing hands commit all the vagaries of an Irish member of Parliament.

CHAPTER XIV.

GAME-PRESERVING.

THE subject reserved for the concluding chapter has to a large extent been already anticipated. In treating of ground and winged vermin, the enemies of every species of game were considered with that fulness of detail demanded by the importance of the subject. To neglect to deal continuously and effectively with the poaching fraternity is to permit the introduction of a state of things which is incompatible with such a stock of game as can either afford pleasure to the naturalist or enjoyment to the sportsman. There is here necessarily involved an expenditure of money on the part of the proprietor, and ceaseless anxiety and watchfulness upon the part of the keeper, which cannot possibly be dispensed with.

There are, however, apart from vermin, other agencies at work which necessarily tend to limit the quantity of game. These may be classified under two heads—passive and active. Under the former head there are three sources of mischief to game which demand special attention. Two of these have been called into existence in the interest of agriculture, and the other in that of advanced civilisation. Under existing conditions it is impossible to avert their mischievous results; but very much may be done to minimise them. In order to this I shall briefly direct attention to the three several points here raised.

First there falls to be considered the erection of stone walls as fences, more especially in the Lowlands of Scotland. In tracts of moorland that have been reclaimed, the stones collected on the reclaimed parts are generally utilised for building walls. These walls very frequently prove disastrous to game, and more especially ground game. As gateways are here and there made in the walls, facilities are thus afforded for netting hares, as they have no means of escape other than the gate-

ways. When a field surrounded by walls as described is young grass, hares repair thither in the evenings to feed. The numbers that are destroyed by netters in such places are very great. I have known preserved ground where, during the cutting of the crops in autumn, the stock of hares driven from the cut crops into the coverts or adjoining moorland was in the highest degree satisfactory. Within the space of a week or two thereafter, it has often been found that almost the entire stock had mysteriously disappeared. It was subsequently ascertained that this had been systematically done by the netters having made a midnight raid upon the stubble-fields, which had been sown with young grass, where they well knew the hares had congregated to feed during the night. By this means it is no unusual thing for tracts of country where the fences are stone walls, or "dry-stane dykes," to be cleared of almost every hare by this despicable class of poachers, whose only object is a monetary one.

Stone walls are also prejudicial to the preservation of winged game, from the facilities they afford to poachers stalking unobserved behind fences of this description.

The evils referred to, in so far as ground game is concerned, are entirely obviated by the substitution of wire fences. While hares can cross them at every part without interruption, it is otherwise with dogs in pursuit. I have known several instances where those detestable pests of the keeper, the cross between the greyhound and the collie, termed lurchers, have been rendered useless, when following hard after ground game, by coming in contact with these wire fences. Greyhounds also, when coursing, have suffered from the same cause. Experience, however, has proved the danger to be such, that coursing, as a rule, has been abandoned where wire fences are numerous.

While wire fences are less destructive to ground game than stone walls, it is otherwise with winged game. The number of birds destroyed by flying against these wires, although only a few feet from the ground, is very considerable.

Stone walls with two strands of wire on the top of them are even more deadly. In point of fact, they constitute a veritable death-trap for grouse and partridges. As these birds are known to skim over stone walls, which are easily seen, they frequently meet a sudden and tragic death by coming in contact with the wires. Many birds are also found dead along the sides of deer fences. This is inexcusable, as

on all wire fences on moorland, where game abounds, bunches of heather should be tied with wire a few feet apart on the top strand, when it will be found that the mischief will be remedied. The effect of this, as I have again and again verified, was most salutary, as it attracted the attention of the birds to the fence, and was the means of inducing them to fly over the wires. When the West Highland Railway was being made, the late Sir Robert Menzies arranged that a wooden bar or railing should be put along the top of the wire fences all through the Moor of Rannoch on his property. By this means the birds discovered the fence, and as they did not care to fly under it, hundreds of grouse were undoubtedly saved.

Another modern innovation in the interest of agriculture is the reaping-machine. When in operation, the quantity of game, both winged and four-footed, that is destroyed by it is simply incalculable. The destruction is aggravated by farmers generally beginning a field or large square of a hay crop and cutting round, gradually narrowing it to a centre, when, as a matter of course, the game keep the cover till they are eventually huddled into such small space that large numbers of the young ones are destroyed. The same remark applies to the cutting of corn, though by this time the young birds are stronger on the wing, and consequently have more chance of escape. It is perhaps too much to expect that farmers would be influenced by such considerations in carrying out their reaping arrangements, but it would certainly be an immense advantage if reaping operations could be so conducted that the machines would work towards the cover. By this means the game, hearing the approach of the reapers, would find their way into the cover without observation or molestation. When a field is cut round towards the centre, the game get confused and stupid by the clatter of the machine on every side, and are thus often prevented from making any attempt to escape. I would suggest that, where game is plentiful, keepers should endeavour to be on as friendly terms as possible with the farmers, and get them to leave an acre or so in the centre over-night, as, when all is quiet, the old birds will generally contrive to take their young to a place of safety.

When keepers have young dogs to train, I would encourage the breaking of them among the young grass in the spring, with the view of trying to drive pheasants and partridges out as much as possible, and induce them to breed among grain or in covers, where they are

practically safe. As by this precaution large numbers of broods would be saved, I would strongly urge that this suggestion be persistently acted upon. As the birds ever and again return to the grass field, keepers are apt to get tired and discouraged in the daily prosecution of a work so monotonous and uninteresting. When, however, they see the numerous partridge and pheasant nests which have been destroyed by the machine, they will regret, when it is too late, that they did not persevere in driving the birds forth to make their nests elsewhere.

Of this I have had much experience. In my younger days I trained a number of young pointers every year, and in the early grass found a sufficiency of pairs of partridges for the purpose. Early grass near towns sold to dairymen for the feeding of cows is here referred to. Hunting the grass daily into May, many birds, from being so often disturbed, sought nesting-places elsewhere. Since dog-breaking ceased, and the fields left quiet, numbers of partridge and pheasant nests are destroyed by the early cutting of the grass.

When hand-rearing, I paid constant visits to fields where hay was being cut with the view of discovering and securing the nests, the eggs of which in many cases were on the point of hatching. I also kept sitting-hens in order to have the eggs placed under them as promptly as possible. In this way I have reared many broods of both pheasants and partridges which otherwise would have been lost. This is, no doubt, an expedient for minimising a mischief that has become inevitable; but it is at best an unsatisfactory one, seeing it is liable to many adverse contingencies. It is infinitely better, as it is much easier, to prevent the evil under discussion than to avert or even mitigate the consequences when too late. Prevention in such a case as this is better than any subsequent remedy that can be devised. The only objection that can be advanced to the adoption of this course is the opposition which it may have to encounter from farmers. Of course, any wise and intelligent keeper would be able to perceive when his operations were really prejudicial to the interest of the farming tenant. It is almost unnecessary to add that he would then feel it to be his duty to withdraw from hunting the hay fields.

The only other modern innovation destructive to game to which attention should be called is that of telegraph wires. When telegraph wires are carried along a road or line of railway which intersects a

district abounding in game, many are found maimed or dead, occasionally with their heads cut off, in proximity to the wires. Along the Highland Line, especially between Struan and Newtonmore, large numbers are found by the surfacemen, and these, from August to December, constitute for them a considerable source of income. An amusing incident came to my knowledge while engaged on the moors there. A girl of one of the surfacemen—whose brother was a gillie with me, and told me the story—was in the habit of regularly walking along the line of the wires in quest of dead grouse. Some of those she picked up had their heads severed from their bodies. Finding the game-dealer allowed her only half-price for those birds that were headless, she fell upon the clever expedient of neatly stitching the heads on the decapitated birds, and by this means perpetrated a form of pardonable deception on the game-dealer.

None but those residing near the spot can form an idea of the number of grouse thus destroyed. In the south end of Kintyre a telegraph wire stretched across the moor to the lighthouse on the Mull. Such was the destruction caused to grouse that I suggested to the keeper the wire should be removed and taken round by the coast. This was eventually done, with beneficial results. The same remarks of grouse destruction by telegraph and telephone wires apply to different parts of the country.

Telegraph wires consisting of twenty strands pass along the road in front of and between fifty and sixty yards of my house. I have often found partridges killed, and on several occasions have seen pheasants, when startled from the adjoining fields, strike the wires and fall to the ground. Many other birds suffer severely in the manner here described. Pewits, golden plover, missel-thrushes, teal, water-hens, rock-pigeons, woodcock, larks, and snipe I have all picked up near the wires. I have also found a pochard, which is rather a rare duck, and a spotted crake, a very rare bird—at least it is the only one I have seen in this district. On one occasion a barn-owl was caught on the wires. Whether it was killed at once by the force of the impact, or, as its wing was twisted round the wire, it was held a prisoner until it died, is not known. It was quite dead when discovered.

We have in our telegraph and telephone system a source of destruction to game which was never contemplated when introduced, and for

which there is only one satisfactory remedy. I refer to the proposal to have all telegraph and telephone wires placed underground. This would also prove a great public advantage, inasmuch as it would obviate all those interruptions to our communications arising from violent storms, and the disturbed state of the atmosphere from other and more subtle causes. The placing of telegraph wires under ground in towns has almost universally taken place. We have here the recognition of a great public improvement in municipal administration, which I am not without hope will one day be extended to the counties.

In referring to those active forces which are at work in the destruction of game, they may be said to consist almost exclusively of ground vermin, birds of prey, and poachers. The first two having been already dealt with, it now only remains to direct attention to the last named.

Poachers may be divided into three distinct classes, differing as widely in their several characters as in their mode of operations. There are those who belong to the generally well-conducted and industrious section of the community, who would scorn to commit any offence against society other than an infraction of the game-laws. While clearly understanding the nature and provisions of the statutes for the preservation of game, they recognise no breach of morality in their non-observance. This class of poachers contrive quietly to transfer themselves into some thinly-populated district on the occasion of an autumn or winter holiday, and there devote the short time at their disposal in endeavouring to shoot such game as they may be able to fall in with during their wanderings. The quantity of game killed by this fraternity is so trifling, and their motive merely to have a day's enjoyment in the country so manifest, that few landed proprietors are disposed to deal hardly by them when reported by the keepers.

There are those, again, who work the greater part of the year, but who never fail to turn to account any contingency which may arise in the way of dull trade or reduced wages as an excuse for indulging in poaching expeditions. One section of the community who contribute largely to this class of poachers is to be found among the mining population.

Game has been the subject of more special legislation than any other kind of property. The earliest record of its origin is lost amid the misty shades of antiquity. It is, however, recorded that game-laws

were placed upon the statute-book in the reign of William the Conqueror in 1066. In early as well as in later times there have been poaching and poachers, who as a rule are as great enemies to themselves as to society. Still, true it is that a village poacher is frequently looked upon with curiosity, and by some with awe. Some are even celebrated in song. One, from his illicit rambles among the hills, earned the *sobriquet* of "Heather Jock," and for the greater part of a century his exploits have been sung.

"Nae yin wi' him could draw a tricker,
At shooting muirfowl he was siccar.
He watched the wild-ducks at the springs,
And hanged the hares wi' hempen strings.
He bleezed the burn and speared the fish—
Jock had mony a denty dish :
The best o' muirfowl and blackcock
Aye graced the board o' Heather Jock."

In more recent times, such have been the social changes in the mining districts that an end has been put to the state of things which once prevailed. The lessees of coal and iron pits are now generally taken bound by their contracts to dismiss from their employment all known poachers—an arrangement which has been found to have a most salutary effect in the interest of miners, as well as that of the general community.

Such wild and romantic escapades were not confined to the Lowlands, or to the pursuit of grouse, black-game, pheasants, partridges, or ground game. Even deer were not exempt from their predatory incursions. I have known a gang of poachers steal into the outlying parts of forests, sleep out on the heather at the most remote distance from any human habitation, and commence operations with the first streak of daylight. The place where they bivouacked for the night was discovered in a deep ravine, and where, from the numerous windings, a light could not be seen at any distance. Quantities of plucked heather were lying about, which had constituted their beds. As bread, fish, and venison were left, they no doubt intended to return, but being discovered, they decamped. Co-operation with the county police was arranged, and the gang were captured in a hired vehicle on the public road. Increase of the value of shootings, and stricter preserving, have made it more difficult for poachers to get up the roads in the glens

without being discovered, and telephones in shooting-lodges are a great deterrent to this class of poaching. Communication with the police by phone simplifies a capture on the public road.

In islands such as Mull, Islay, Jura, Scarba, and others where deer abound, it is much more difficult to put poaching down. Sailing round the coast,—deer take little notice of boats, from seeing them daily,—and discovering some “beasts,” the poachers push on till out of sight to leeward, get ashore, and commence a stalk. Should they be successful in killing one it is dragged downhill to the boat, when they sail away with it. A keeper on the north end of Jura one day from the top of a hill discovered a boat moored at the shore. Suspecting poachers, he made for the boat, but, being seen by them, it became a race who was to reach it first. The poachers had the advantage, not having so far to run, and so escaped.

Raids made into deer-forests by poachers are fortunately of rarer occurrence now than they were in my young days. About that time it was no unusual thing for poachers resident in the district to obtain their meat-supplies for the winter from the forest. They generally contrived to find their way into the mountain solitudes by the light of the moon; and after daybreak, having stalked one or two deer, they dragged them into a narrow gorge or mountain stream, where they were gralloched and concealed. Their next concern was to remain in concealment until darkness had set in, when they proceeded homeward with their booty. Some of these hill poachers have been known to be sufficiently daring to take with them a small Highland pony to lighten their burden.

Those poachers who steal out into the rural and moorland districts are not unknown in the Lowlands. They are thereby able to attack both winged and ground game in the early mornings and late in the evenings, when both are more easily approached. By stalking behind a stone wall, they are enabled to approach within easy shot of grouse or partridges feeding on the stubble, when they never fail to fire into the thickest part of the covey. By this means they not only succeed in killing several birds at a shot, but as numbers are generally wounded by the stray side pellets, the mischief done becomes aggravated. I have known as many as nine grouse picked up from a stubble-field, the result of a poacher having discharged his double-barrelled gun through a port-hole in the coping of a stone wall. It is unnecessary to say that

as such practices partake in no degree of the element of sport, they ought to be put down with a firm and strong hand. The moors are often visited by this class of poacher after gentlemen have gone south. The premium exacted by these scoundrels in robbing preserved grounds of nests is amazingly high, and calls loudly for immediate legislation in order to the suppression of this most nefarious traffic. As the season advances they betake themselves to the moors, where, by the aid of dogs and nets, they entrap and carry off whole coveys of grouse, not infrequently including even the old birds.

The strangulation of hares by snares and the use of nets constitute another outrage upon the game-laws. The number of hares carried off preserved grounds by the process of netting is simply incredible.

The long net is still more deadly than those hung upon gates, as with it the poachers can clear a district of hares and rabbits, even without the aid of a dog. Their plan is to go stealthily, on a dark night, to a field containing good feeding, adjoining a plantation where game is abundant, and not unfrequently within a short distance of the keeper's house. They then set their nets, sometimes hundreds of yards in length, along the side of the cover, having with them small, hardwood, sharp-pointed posts, which are forced into the ground, and on which the net is hung. After this is accomplished, they go round to the other end of the field, and a rope, several hundred yards in length, designated the "dummy," is drawn by each end towards the net. The result is that any hares or rabbits that may be feeding or squatting out in the field fly before the "dummy," and in consequence get entangled in the net. I have thus known a preserve almost cleared of ground-game in a single night.

When poachers are caught netting, they are generally found fully equipped for their lawless work, having no buttons on their clothes on which the net might become entangled, their shoes being india-rubber and free of nails—thus accounting for the silence and stealth with which the poachers arrange their nets, and proving, at the same time, that midnight poaching has been skilfully reduced to a science.

The system of netting game during the night is not confined to hares and rabbits. Winged game also come within the sweep of the action of these midnight marauders, and in no case are they more successful than in that of netting partridges. In the capture of these birds

during night, everything is in favour of the poacher. It is the habit of partridges for the most part to settle for the night in dry lea-fields, second-crop grass, &c. The netters, taking note of this, are thus able to execute their work quietly and effectively, thereby minimising the risk of being taken. Partridges are in this way carried off wholesale, to the disappointment of sportsmen and the vexation of keepers. Those mercenary members of the poaching fraternity, when detected, should have meted out to them a severity of punishment very different to that of the poacher carrying a gun during the day.

As a means of preventing this mode of netting partridges, I would recommend that all likely fields should be most effectively bushed. The rougher the branches, and the more numerous, the better, so that there is the greater likelihood of the nets being entangled and torn. Oak or other hardwood posts, about an inch square and four feet long, pointed, and driven into the ground irregularly over the field, are also a preventive, especially if a few nails be driven into them near the top. They have the advantage of not being so much objected to by farmers, as they prove a less source of annoyance to sheep than bushes. It must not, however, be supposed that bushing is a complete remedy, and it must on no account be allowed to take the place of night-watching.

It is when the netting of hares and partridges has ceased to be productive, and the professional poachers become desperate, that they have recourse to the pheasant-preserves during night. As pheasants have by this time taken to the trees, where they invariably roost during the winter months, all netting operations are set at defiance. The poacher is thus compelled to resort to his gun, the report of which greatly increases his risk of detection. No one knows this better than the poacher. It is the consciousness of this fact that makes him conspire with his fellows to resist being captured, often to the death; and it is at this stage of his career that it often culminates in the dastardly crime of violence and murder. It is in the public-house, with rare exceptions, that these midnight raids upon game-preserves are planned; and it is no less true that it is under the influence of drink that they are generally entered upon and carried out. Indeed I am convinced that, but for their being fired with intoxicating liquor, it would not be possible for them deliberately to plan and enter upon an enterprise which they must know may terminate upon the gallows.

Some years ago a poaching raid into a Mid-Lothian preserve was—it

subsequently came out—planned in a public-house. No sooner had the poachers fired a couple of shots than three keepers—friends of my own—in the exercise of their duty, interfered. The poachers were under the influence of drink and charged the keepers in deadly conflict, deprived two of them of their lives, and seriously wounded the third. They were tried and convicted of murder, and expiated their guilt upon the scaffold.

The preservation of pheasants from the incursions of poachers during the night is one of the most serious difficulties with which the keeper has to contend. True, there are certain expedients he may adopt, but any or all of them may prove ineffectual. I would suggest that where foxes are not preserved, the birds should be prevented roosting in any trees other than in the very thickest of firs. This, of course, involves an immense amount of labour. The mischief done by shooting pheasants during the night may also be minimised by nailing artificial pheasants on the trees and by planting alarm-guns in the preserves; but there is no certain protection, that I am aware of, other than that of watching by active and judicious keepers.

Great changes have taken place in the duties of the gamekeeper since my young days. Formerly the protection of game and the showing of a good head on shooting days were practically all that was required. Any keeper, however ignorant, if sober and honest, was then, at least to some extent, competent to accomplish this. Now, however, when the rearing of game and the management of a shooting are reduced to a science, intelligence is indispensable to success. Poaching also, as already said, has been reduced to a science, and the nocturnal visits of the poacher with his stretches of nets and india-rubber shoes require skill, discrimination, and patient perseverance to be successfully dealt with. Even when there is a happy combination of all these, large quantities of both winged and ground game sometimes disappear in a single night.

The operation of the Ground Game Act has tended further to increase the difficulties of the keeper, and to render his position all the more embarrassing, for no amount of vigilant intelligence can subvert the drastic provisions of a disappointing legislative enactment. While an ignorant and indiscreet keeper is apt to bully and quarrel with farmers, the wise man, even when there is much provocation, will accept the inevitable and strive to exhibit a courteous demeanour towards them,

so long as, in the exercise of their rights, they respect the statutes by which these are defined.

A keeper should keep a double-column cash-book, so that his income and expenditure can be seen at a glance. All game and rabbits sold should be marked as income, and every head given away, or taken into the house, should be noted at market prices. His book should be periodically examined by the estate auditor, but care should be taken to allow him the management of his own department. With wages, feeding-stuffs, &c., in the one column, and income in the other, and when he has the whole responsibility on his own shoulders and knows what is expected of him, he feels it to be his interest to show good results, and to compete in these respects with neighbouring estates. Where there is a large consumption, a great saving can be effected in maize alone in buying from honourable firms who do not grant commissions (to the pecuniary injury of the proprietor and to the demoralisation of the keeper). Let the latter know that he is upon his honour and that his merits are appreciated, and this will go far to fortify him against giving way to temptation.

The gamekeeper's duty is an old and honourable calling, the modern survival of the rangers and wardens of baronial times, which is of great antiquity. His success or non-success contributes largely or otherwise to the pleasures of the chase, which for centuries have been so much enjoyed by the wealthy classes of this country from royalty downwards. The duties of a keeper must therefore be honestly, faithfully, and conscientiously performed. Essentially, he must be a man who keeps the game on his beat, a lover of nature, and an observer of the haunts, habits, and peculiarities of game and their enemies. He must be sober, civil, and obliging; courageous, having firmness and judgment to deal with poachers, trespassers, and others. He must not be a shirker of hard work, but quiet in the field and when working dogs, ever anxious to show sport. He should have no regular hours for patrolling ground, or for meals or sleep. He should know everybody by sight and their character. He should be respected by every one on account of his fair dealing to all, but should not have too intimate relations with any one. He must not be given to gossip, although ready to pick up information in a quiet way; kind and humane to animals, and careful of his dogs.

The master should take a keen interest in the keeper's work during

the entire year, and not merely in the shooting season. He should see also that useful books relating to sport are not confined to his own library, but that the keeper should have access to them. Mr P. J. Mackie, in his well-known 'Keeper's Book,' says: "It is the master's duty to see that his keeper is put in possession—temporarily it may be—of some of the more practical of these writings, and to insist that advantage be taken of the advice there put forward." When I first came to be gamekeeper to that veteran sportsman, the late Mr Little Gilmour, he presented me with some books, and had underlined the important parts which he wished me to study. I frankly admit I was benefited thereby, and also by his advice in after years.

There are, it is said, "black sheep in every flock," and I here refer to them with reluctance. They are, in one sense, the most aggravating of all poachers, seeing that breach of trust and disloyalty to duty are added to that of positive theft. I refer to those unscrupulous and dissipated keepers who sell their master's game, and, by virtue of the trust reposed in them, are, as a matter of course, most difficult of detection. Fortunately, in so far as my experience goes, this is not a numerous class; still, true it is that the depredations of characters of this description are occasionally brought to light. Without exception, this class of keepers are generally secret or notorious drunkards, and will scruple at nothing to acquire the means necessary to indulge their craving for drink.

When at a cover shoot a few years ago, I noted that the first bird killed was minus a foot. It was a fine strong cock pheasant that had managed to escape, but had evidently left its foot in the trap. The dried blood was still on the leg and the wound quite green. I was wondering why this should be, trapping as a rule not having commenced till after the covers are shot. Presently another cock came over and was brought down, which also had a leg newly trapped off, and I remarked "There is something wrong here." Shortly after the keeper was dismissed, and it was subsequently ascertained that game had been regularly sent to the dead-meat market, and was sold in the proprietor's name, *per the gamekeeper*.

That the profession of gamekeeper should be purged from such discreditable members is most desirable, and to secure this object none have a greater interest than keepers themselves. Taking gamekeepers as a class, I feel bound to say that, for intelligence, industry, and

probity, they will favourably contrast with any section of the industrial community. It is doubtful how far they are sufficiently paid; and certainly it is the duty, as I believe it is to the interest, of landed proprietors and all genuine sportsmen to see that faithful and obliging keepers are considerately treated, and at the same time liberally remunerated. No one acquainted with the long and irregular hours, the inclement weather, night-watching, and even danger to life, which they have to encounter, will care to dispute the reasonableness of this suggestion.

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